Repair Manual

Audi TT 2015 ➤

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Heating, Ventilation and Air Conditioning

Edition 12.2021

List of Workshop Manual Repair Groups

Repair Group

00 - General, Technical Data

80 - Heating, Ventilation

87 - Air Conditioning

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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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00 – General, Technical Data

1 Safety Precautions

(Edition 12.2021)

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⇒ P1.1 recautions when Working on A/C Systems", page 1

⇒ P1.2 recautions when Handling Refrigerant", page 1

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⇒ P1.4 recautions during Road Test with Testing Equipment", page 2

⇒ P1.5 recautions when Working on Cooling System", page 2

1.1 Safety Precautions when Working on A/C Systems

Ignition sources are extremely dangerous and pose a risk of explosion

There is a risk of fatal injury and explosions due to ignition sources near the A/C system and refrigerant cylinders. Leaking refrigerant can ignite and cause an explosion. Death or serious bodily injury by explosion.

– Never bring ignition sources near A/C systems and refrigerant cylinders.

– Discharge electrostatic and prevent sparks resulting from striking tools and hot surfaces.

1.2 Safety Precautions when Handling Refrigerant

There is a risk of getting frostbite from the refrigerant.

Refrigerant can come out under pressure when working on the A/C system. Frostbite on the skin and other parts of the body is possible.

– Wear safety gloves.

– Wear protective eyewear.

– Evacuate or drain refrigerant and open the refrigerant circuit immediately.

– If more than 10 minutes elapse after extracting or draining the refrigerant and the refrigerant circuit has not been opened, extract or drain the refrigerant again. Pressure develops in the refrigerant circuit due to evaporation.

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Risk of asphyxiation and poisoning from the refrigerant

Dry coughing and nausea due to suffocation and poisoning is possible due to refrigerant fumes.

– Never breathe in refrigerant fumes.

– Only work on the refrigerant circuit in well-ventilated areas and protect refrigerant cylinders.
– Never perform procedures in and near basement staircases or other below ground areas.
– Switch on the exhaust extracting system.

1.3 Safety Precautions when Working on Vehicles with Start/Stop System

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There is a risk of injury due to the engine starting unexpectedly.

The engine may start unexpectedly on vehicles with an activated Start/Stop System. A message in the instrument cluster indicates whether the Start/Stop System is activated.

– Deactivate the Start/Stop System: switch off the ignition.

1.4 Safety Precautions during Road Test with Testing Equipment

There is a risk of injury due to unsecured testing equipment.

If the front passenger airbag activates during an accident unsecured testing equipment becomes a dangerous projectile.

– Secure testing equipment on the rear seat.

or

– Have a second person operate testing equipment on the rear seat.

1.5 Safety Precautions when Working on Cooling System

Risk of scalding due to hot coolant

The cooling system is under pressure when the engine is warm. There is a risk of scalding due to hot steam and hot coolant.

– Wear safety gloves.
– Wear protective eyewear.
– Reduce the pressure by covering the coolant expansion tank cap with a cloth and carefully opening it.

2 General Information

⇒ L2.1 abels", page 3

⇒ i2.2 n Vehicles with A/C System Information", page 5

⇒ H2.3 eater Operation with Diesel Engine (Not for North American Market)", page 6

⇒ H2.4 eating", page 11

2.1 Type Labels

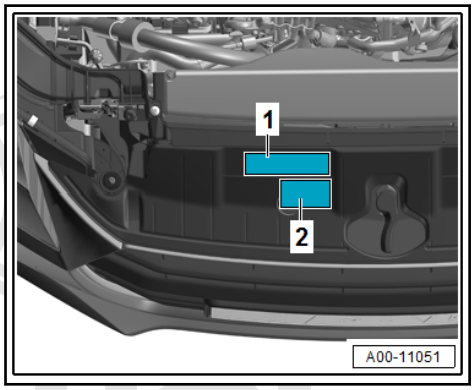
The refrigerant and capacity type label is located on the upper right of the bumper cover.

Note

- *The information label provides information about the type of refrigerant used, the refrigerant quantity filled at production and the refrigerant oil filled.*
- *Symbols on the information label indicate the dangers which may occur when handling refrigerant and/or when working on the refrigerant circuit.*
- *Through 06/2016, the refrigerant circuit on all A/C systems was filled with Refrigerant R134a. As a running change from 06/2016, refrigerant R134a or refrigerant R1234yf is filled depending on the market and the vehicle version. Refer to ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Legal Texts and Regulations*
- *Norms and standards can also be stated, such as the valid SAE standards defined in the USA. The SAE J639 describes the safety precautions for A/C systems in passenger vehicles. The SAE J842 explains that only approved components and materials may be used for refrigerant R1234yf, and SAE J2845 says that only trained and certified technicians may perform repair and service procedures on the A/C system refrigerant circuit.*
- *Depending on the version and the vehicle date of manufacture, the GWP value (global warming potential) for the refrigerant used may also be specified.*
- *The capacities and the type of refrigerant oil specified on the information label show the status at the time of vehicle production. The current valid values must always be taken from the vehicle-specific repair manual. Refer to ⇒ D5 ata", page 63 , ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant R134a Capacities, Refrigerant Oil and Approved Refrigerant Oil or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Technical Data.*

Specification on information label -2-

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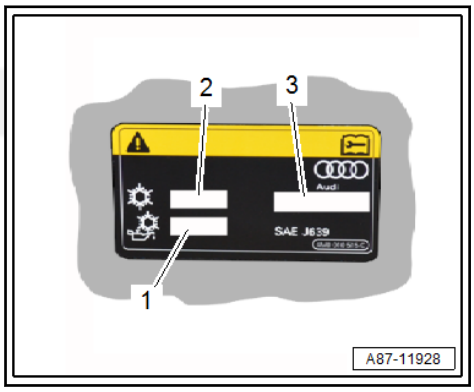


1 - Refrigerant designation, for example R134a or R1234yf (depending on the production date and the version)

2 - Refrigerant Capacity

Version “1”

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1 - Refrigerant Oil Designation, here it is PAG oil. Refer to ⇒ R5.2 efrigerant Oils and Refrigerant Oil Capacities”, page 65 for more information.

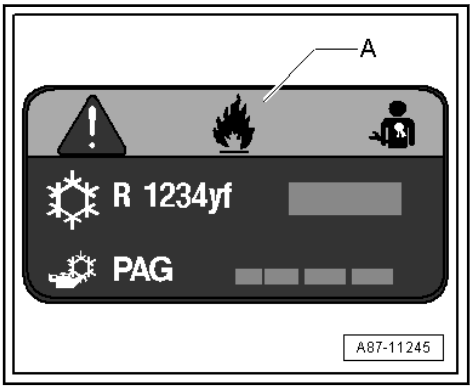
2 - Refrigerant designation, for example R134a or R1234yf (depending on the production date and the version). Depending on the version of the type plate and the vehicle date of manufacture, the GWP (Global Warming Potential) value may also be given. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information (“Refrigerant R134a”, “Environment aspects of refrigerant R134a”) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Technical and Physical Principles.

3 - Refrigerant Capacity

Note

- *Refrigerant R134a and refrigerant oil as well as approved refrigerant oil capacities. Refer to ⇒ Refrigerant R134a, Servicing; Rep. Gr. 87; Refrigerant R134a Capacities, Refrigerant Oil and Approved Refrigerant Oil Capacities.*
- *Capacities for refrigerant R1234yf and refrigerant oil as well as approved refrigerant oil. Refer to ⇒ D5 ata”, page 63 and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Technical Data.*

Version “2”



Note

Explanations about the specifications on the information label -A-. Refer to ⇒ page 4 .

2.2 Odors in Vehicles with A/C System Information

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Odors from the A/C system can come from various sources. Only a portion of these odors come from the A/C unit evaporator and can be corrected by cleaning the evaporator.

Odor Type	Possible Causes and Corrective Measure
Smells like burnt oil	♦ Usually originates in the engine compartment due to leaks on the engine or transmission – Eliminate the leaks on the engine or transmission
Sulfurous smell similar to exhaust	♦ Leak in the exhaust system ♦ Exhaust fumes, which get into the vehicle interior, for example, when driving in reverse through an exhaust gas cloud – Eliminate the leaks in the exhaust system
Fishy smell like coolant	♦ Leaks in the cooling system for the engine or for the heater core in the heater and A/C unit. – If the fishy odor is also detected in recirculating air mode as well as in fresh air mode, check the heater and A/C unit heater core for leaks.
Smells like a burned clutch	♦ Clutch plates are worn or there is an operating error – Check the clutch
Evaporation	♦ Floor mats, retroactively installed decorative seat covers, etc. – Check the floor mats or decorative seat covers. Replace or clean.
Rotten, moldy or musty smell from the front of the vehicle	♦ If the plenum chamber cover is damaged or incorrectly installed, water can enter the fresh air intake via the rain water drain channel. – Check the fresh air intake of the heater and A/C unit. Refer to ⇒ A6.6 ir Intake, Removing and Installing", page 300 . ♦ Contaminants, such as leaves, pine needles, etc. collecting in the plenum chamber – Check the plenum chamber for contaminants. Refer to ⇒ C6.9 hamber Water Drain, Checking", page 309 . ♦ Water that cannot drain out of the plenum chamber – Check the water drains. Refer to ⇒ C6.9 hamber Water Drain, Checking", page 309 .

Odor Type	Possible Causes and Corrective Measure
Odor from the heater and A/C unit	♦ Too much condensation water in the heater and A/C unit – Check the condensation water drain. Refer to ⇒ W5.20 ater Drain Hose, Checking", page 273 . ♦ Old or heavily contaminated dust and pollen filter. – Check the dust and pollen filter. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247 . ♦ Deposits on evaporator slats – Clean the evaporator. Refer to ⇒ C5.6 leaning", page 229 .

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Note

- *Only if the odor originates in the evaporator can it then be eliminated by cleaning with the Ultrasound A/C Cleaner -VAS 6189B- or with a Suction Feed Spray Gun -V.A.G 1538-.*
- *Numerous procedures varying in their application and effect are available on the market for cleaning the evaporator. At this time Audi has tested and approved cleaning the evaporator using the Ultrasound A/C Cleaner -VAS 6189B- or a Suction Feed Spray Gun -V.A.G 1538-, for example. Additional procedures tested and approved by Audi as well as corresponding information about them can be found, for example, in "Audi Dealer Portal" or in "Audi ServiceNet".*

- Refer to ⇒ C5.6 leaning", page 229

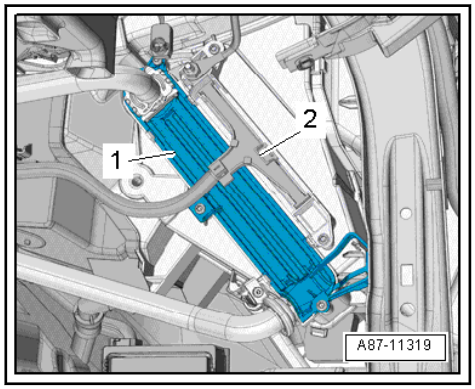
2.3 Parking/Auxiliary Heater Operation with Diesel Engine (Not for North American Market)

⇒ H2.3.1 eater Information", page 6

⇒ H2.3.2 eater, Checking Activation", page 7

2.3.1 Auxiliary Heater Information

- A parking heater for the Audi TT is not currently offered as optional equipment. If a parking heater should be installed at a later date (for example, as a retrofit), it will not be activated as an auxiliary heater.
- An electric auxiliary heater is currently only available on vehicles with a TDI engine.
- An auxiliary heater is currently not available on vehicles with a gasoline engine (introduction for vehicles with a gasoline engine not yet finalized).
- The Engine Control Module -J623- activates the electric auxiliary heater (the Auxiliary Heater Heating Element -Z35-) on vehicles with a TDI engine (introduction and activation not yet finalized on vehicles with a gasoline engine). The control modules exchange this information with one another via the data Bus. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- The Auxiliary Heater Heating Element -Z35- -item 2- is installed near the heater core -1- for the heater. Refer to ⇒ A5.17 uxiliary Heater Heating ElementZ35, Removing and Installing", page 254 .

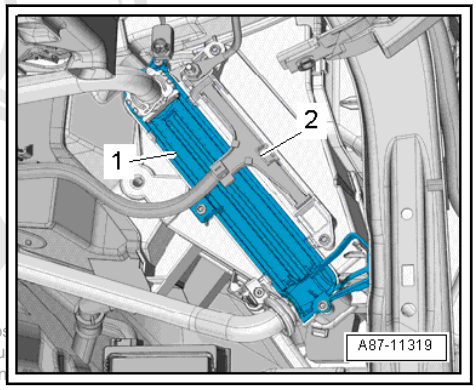


- Check the function and the resistance value of the Auxiliary Heater Heating Element -Z35- using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

2.3.2 Auxiliary Heater, Checking Activation

The components involved with the activation of the auxiliary heater:

The air is supplied with heat energy via the Auxiliary Heater Heating Element -Z35- -2- after it has left the heater core of the heater -1-. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function. The requirement for this is a request from the Climatronic Control Module -J255- to the Engine Control Module -J623-



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Note

The activation of the Auxiliary Heater Heating Element -Z35- is switched off when the Stop function is active to protect the Battery -A- on vehicles with the Start/Stop System. As soon as the engine is started again via the Start function, the Auxiliary Heater Heating Element -Z35- is reactivated if there is a request. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

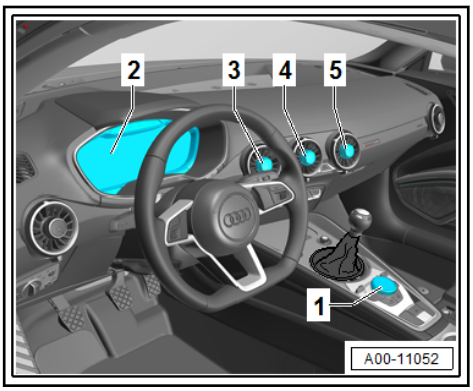
Switch-On Criteria for Auxiliary Heater Activation

- The switch-on conditions must be met in the Climatronic Control Module -J255- and in the Engine Control Module -J623-.

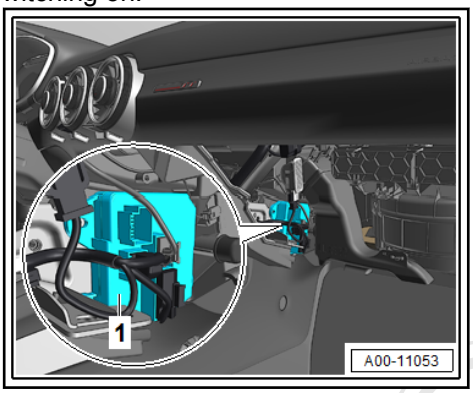
The Climatronic Control Module -J255- sends a request to switch on the auxiliary heater to the Engine Control Module -J623- when the following requirements are met:

- The “automatic auxiliary heater” function is not deselected (shown in the instrument cluster center display -2-, selected

via the Multimedia System Control Head -E380- -1-). Refer to the ⇒ Owner's Manual.

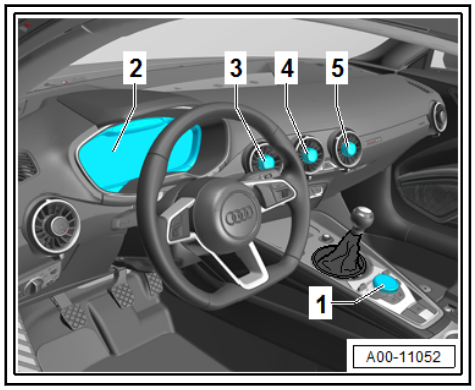


- Engine has been running for at least eight seconds and engine speed is greater than 500 RPM.
- Engine temperature is lower than 75 °C (167 °F).
- The calculated exterior temperature is lower than 6 °C (42.8 °F).
- The Stop function of the Start/Stop System is not active.
- The electrical system voltage is greater than 12.2 volts and no prompt forbidding the activation is sent by the Vehicle Electrical System Control Module -J519-.
- There is no error stored in the Climatronic Control Module -J255- -1- that would prevent the Auxiliary Heater Heating Element -Z35- from switching on.



- No error is stored in the Engine Control Module -J623- and the Generator -C- load is less than 30 to 77 % (depending on the engine control module version). Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
- Based on the settings on the Front A/C Display Control Head 2 -E775- -3-, the Front A/C Display Control Head 3 -E776- -4- and the measured temperatures, the Climatronic Control Module -J255- has calculated that additional heating output is necessary to reach the specified vehicle interior temperature.

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- More than 90 % of the air (position of the temperature control doors) is directed through the heater core for the heater for the left or right side.

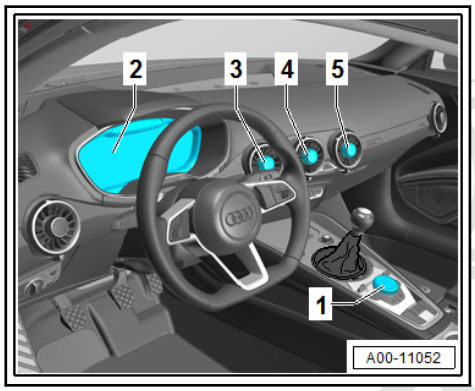
Note

The Engine Control Module -J623- actuates the Auxiliary Heater Heating Element -Z35- via the Low Heat Output Relay -J359- and the High Heat Output Relay -J360- so that the Generator -C- load does not exceed 95%. The next level is only switched on if the generator load is less than 30 to 77 %, depending on the engine speed. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Switch-Off Criteria for Auxiliary Heater Activation

Note

The activation is switched off as soon as the "automatic auxiliary heater" function is deselected (shown in the instrument cluster center display -2-), a switch-on requirement in the Climatronic Control Module -J255- or the Engine Control Module -J623- is no longer met, or one of the switch-off criteria is detected.



The Climatronic Control Module -J255- stops the request to switch on the electric auxiliary heater under the following conditions:

- One of the switch-on requirements is no longer met.
- The calculated exterior temperature is higher than approximately 8 °C (46.4 °F).
- The Generator -C- load is greater than 95%.

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- Less than 60 % of the air is directed through the heater core for the heater for the left and right side (position of the temperature control doors).
- The Stop function of the Start/Stop System is active.

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2.4 Seat Heating

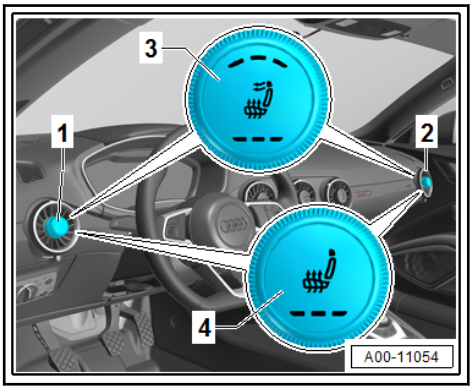
⇒ S2.4.1 eat and Neck Heating, Checking", page 12

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2.4.1 Front Seat and Neck Heating, Checking

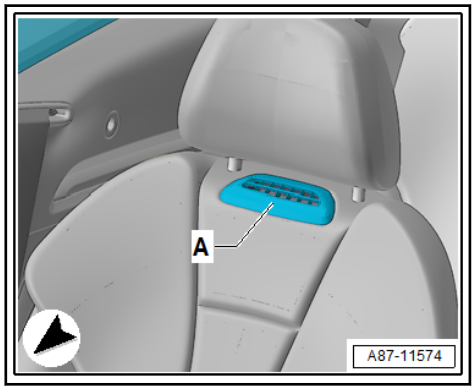
Note

- *Front seat heating is available as optional equipment on the Audi TT. For more information, refer to ⇒ Owner's Manual and ⇒ Body Interior; Rep. Gr. 74; Front Seat Covers and Cushions. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Vehicle Electrical System Control Module -J519-) and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *Neck heating is only available on the Audi TT Roadster as optional equipment for seat heating. For more information about neck heating, refer to the ⇒ Owner's Manual and ⇒ Body Interior; Rep. Gr. 74; Front Seat Covers and Cushions. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Vehicle Electrical System Control Module -J519-) and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *Vehicles with optional "seat heating" equipment can be identified by the symbol -4- on the control heads installed in the left and right vents -1 and 2-.*



- *There are different versions and part numbers for the Front A/C Display Control Head 1 -E774- -1- (installed on left) and for the Front A/C Display Control Head 5 -E778- -2- (installed on the right). Different data signals on the "LIN Bus" data wire from the Climatronic Control Module -J255- are used for allocating the signal for seat heating activation (and/or neck heating) from the Front A/C Display Control Head 1 -E774- for the left seat and the signal from the Front A/C Display Control Head 5 -E778- for the right seat. For problems with seat heating activation (and/or neck heating) on identical or interchanged control heads, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-). Refer to the ⇒ Electronic Parts Catalog (ETKA) and ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *Vehicles with optional "seat and neck heating" equipment can be identified by the symbol -3- on the control heads installed in the left and right vents -1 and 2-.*
- *Vehicles with optional "seat and neck heating" equipment can be identified, for example, by the vent -A- that is installed in the seat. Refer to ⇒ Body Interior; Rep. Gr. 72; Front Seats.*

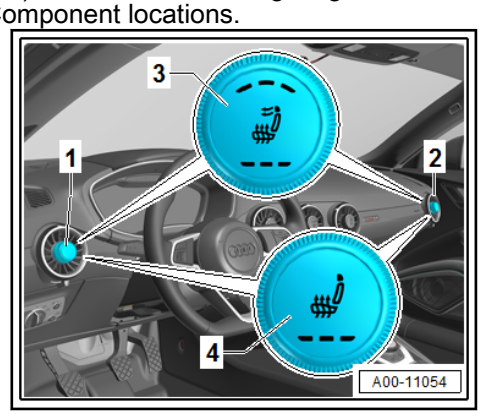
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Rear seat heating is not available on the Audi TT. Refer to ⇒ Body Interior; Rep. Gr. 74; Rear Seat Covers and Cushions and ⇒ Wiring diagrams, Troubleshooting & Component locations. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Vehicle Electrical System Control Module -J519-).

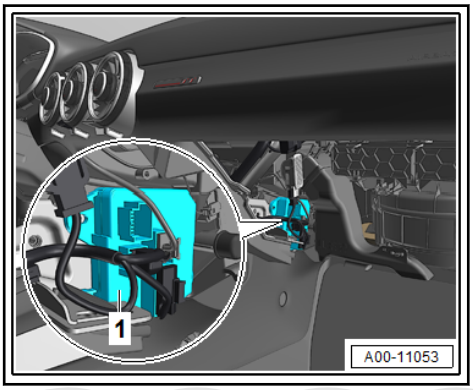
Components Involved in Activation of Seat Heating (and Neck Heating):

- The Front A/C Display Control Head 1 -E774- -1- sends the selected setting for the seat heating (and / or neck heating) for the left seat via a "LIN Bus" data wire to the Climatronic Control Module -J255-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-) and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.



- The Front A/C Display Control Head 5 -E778- -2- sends the selected setting for the seat heating (and / or neck heating) for the right seat via a "LIN Bus" data wire to the Climatronic Control Module -J255-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-) and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- The Climatronic Control Module -J255- -1- reports the selected setting for seat heating (and / or neck heating) for the left and / or right seat via a "LIN Bus" data wire to the Vehicle Electrical System Control Module -J519-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-) and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

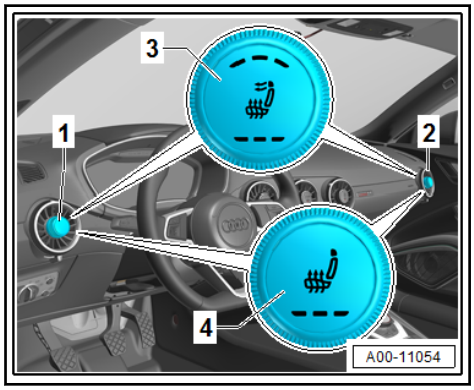
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- The Vehicle Electrical System Control Module -J519- then directly activates the seat heating elements. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Vehicle Electrical System Control Module -J519-) and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- The Vehicle Electrical System Control Module -J519- then activates the Left neck heating Control Module -J846- and / or the Right neck heating Control Module -J847- via a data wire. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Vehicle Electrical System Control Module -J519-) and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Check the function and activation of the seat heating (and / or neck heating) using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-).

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Procedure



The seat heating (and the neck heating) is adjusted using the control heads installed in the left and right instrument panel vents (Front A/C Display Control Head 1 -E774- -1- and Front A/C Display Control Head 5 -E778- -2-).

- When the seat heating (neck heating) is switched on, the function indicator lamps in the control heads -1 and 2- illuminate. Refer to the ⇒ Owner's Manual.
- If it is not possible to switch on the seat heating (or neck heating) due to a shut-off condition detected by the Vehicle Electrical System Control Module -J519-, the Vehicle Electrical System Control Module -J519- sends the respective information back on the data Bus (via the Climatronic Control Module -J255-) to the Front A/C Display Control Head 1 -E774- and / or the Front A/C Display Control Head 5 -E778- and the function indicator lamps in the control heads -1 and 2- do not illuminate or go out.

- The setting for the seat heating (and the neck heating) is adjusted on the control heads -1 and 2-. The specified temperatures for the various settings of the seat heating (and neck heating) are stored in the Vehicle Electrical System Control Module -J519-. Depending on the version of the Vehicle Electrical System Control Module -J519-, the specified temperature for seat heating may be different with the same setting on the control heads -1 and 2-. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- The selected setting for seat heating (and neck heating) for the driver seat can be stored in the Climatronic Control Module -J255- in a key-dependent manner. The settings made prior to the ignition being switched off are applied during the next driving cycle. Refer to the ⇒ Owner's Manual.
- Depending on the vehicle and the version of the Climatronic Control Module -J255- (or the Vehicle Electrical System Control Module -J519-), the selected setting for seat heating (and neck heating) may be automatically turned down a setting after running for a certain amount of time (for example, after 10 minutes). Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” and refer to the ⇒ Owner's Manual.
- For vehicles with the Start/Stop System, the seat heating (and neck heating) may be switched off to protect the Battery -A- when the Stop function is active. The setting for activating the seat heating (and neck heating) remains stored however in the Climatronic Control Module -J255-. Seat heating (and neck heating) is switched on again as soon as the engine is restarted via the Start function. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Vehicle Electrical System Control Module -J519-) and refer to the ⇒ Owner's Manual.
- For vehicles without a passenger occupant detection system for the front passenger seat, the seat heating (and the neck heating) is not automatically switched off by the Climatronic Control Module -J255- or the Vehicle Electrical System Control Module -J519- at this time if a seat is unoccupied while driving. If the ignition is turned off and is not turned on again within approximately 10 minutes, the setting for seat heating (and neck heating) activation for the front passenger side is erased. Refer to the ⇒ Owner's Manual.
- If, for example, the Vehicle Electrical System Control Module -J519- voltage measured at terminal “30” falls below a value stored in the Vehicle Electrical System Control Module -J519-, the output of the seat heating (and neck heating) is reduced or switched off completely to reduce the load on the Generator -C-. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function for the Vehicle Electrical System Control Module -J519-.
- If there is a condition that prevents the driver or front passenger seat heating (or neck heating) from switching on (for example, there is a short circuit in the power supply to the particular control module, etc.), this will be stored as a fault in the Climatronic Control Module -J255- and in the Vehicle Electrical System Control Module -J519-. Information stating that the DTC memory in the relevant control module must be checked may not be sent via the data Bus to the Climatronic Control Module -J255- control head on this vehicle. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-). If there is a complaint regarding seat heating (or neck heating), first check the DTC memory of the control modules that can affect the activation.

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- Depending on the version and vehicle equipment, the various information regarding the activation of the seat heating (neck heating), such as the setting transmitted by the Climatronic Control Module -J255-, the specified and actual temperature of the seat, etc. is displayed differently with different measured values in the various control modules. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-).
- In the “read measured values” function of the “Guided Fault Finding” for the Climatronic Control Module -J255-, it shows which setting for the seat heating (and neck heating) has been selected. The activation of the seat heating (and neck heating), the actual and target seat temperature, the actual current supplied to the seat heating (neck heating), etc. are displayed in the “Read measured values” function for the Vehicle Electrical System Control Module -J519-, depending on the vehicle version and equipment. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
- Function test description for the activation of the seat heating and neck heating. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function for the Vehicle Electrical System Control Module -J519-.

Note

- *Seat Heating Function, Checking and Servicing. Refer to ⇒ Body Interior; Rep. Gr. 74; Front Seat Covers and Cushions and ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *For checking and servicing the function and activation of the neck heating, use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function for the Vehicle Electrical System Control Module -J519-. Refer to ⇒ Body Interior; Rep. Gr. 72; Front Seats and ⇒ Wiring diagrams, Troubleshooting & Component locations.*

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3 Identification

⇒ a3.1 nd A/C Unit Identification", page 17

3.1 Heater and A/C Unit Identification

⇒ a3.1.1 nd A/C Unit Identification, Denso", page 17

⇒ a3.1.2 nd A/C Unit Identification, Valeo", page 18

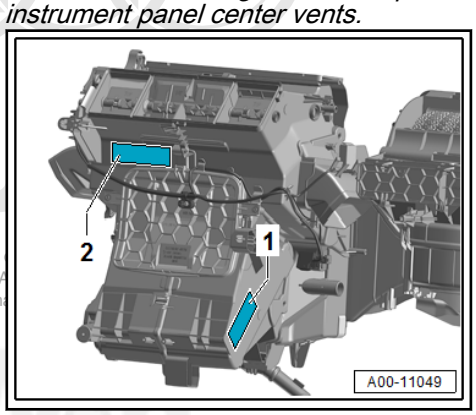
3.1.1 Heater and A/C Unit Identification, Denso

"Denso" heater and A/C units are installed on this vehicle at the start of production. "Valeo" heater and A/C units may also installed at a later date (introduction not yet finalized).

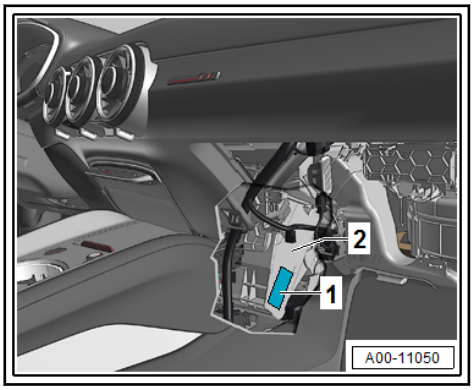
Note

- *Ensure the correct allocation when replacing components. Interchanging components from different manufacturers is not permitted. Refer to the ⇒ Electronic Parts Catalog (ET-KA).*
- *Depending on the manufacturer, a sticker is attached to the heater and A/C unit at different locations. On a "Denso" heater and A/C unit, the manufacturer sticker -1- is on the right side of the air distribution housing for the heater and A/C unit. On a "Valeo" heater and A/C unit, the manufacturer sticker -2- is on the air distribution housing under the openings for the air to the instrument panel center vents.*

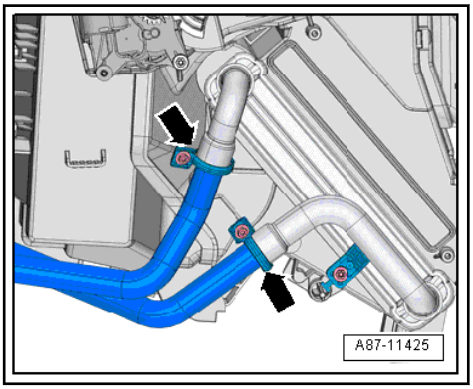
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- The manufacturer sticker -1- is visible on the heater and A/C unit -2- only after removing the glove compartment (or the center console).



- The separating point for the coolant pipes -arrows- is integrated in the coolant pipes. The coolant pipes are visible after removing the cover for the left side (driver side).

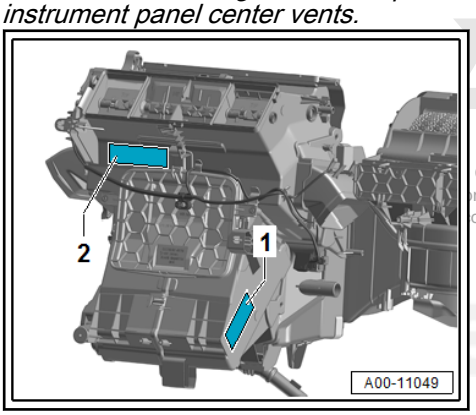


3.1.2 Heater and A/C Unit Identification, Valeo

"Denso" heater and A/C units are installed on this vehicle at the start of production. "Valeo" heater and A/C units may also installed at a later date (introduction not yet finalized).

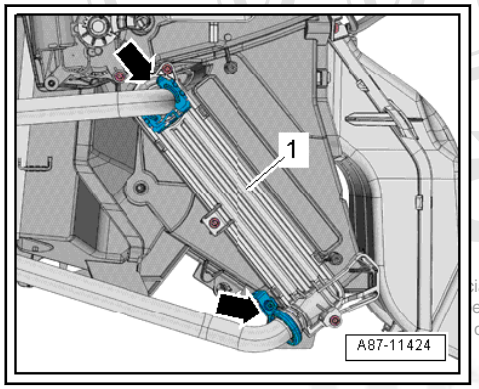
Note

- *Ensure the correct allocation when replacing components. Interchanging components from different manufacturers is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Depending on the manufacturer, a sticker is attached to the heater and A/C unit at different locations. On a "Denso" heater and A/C unit, the manufacturer sticker -1- is on the right side of the air distribution housing for the heater and A/C unit. On a "Valeo" heater and A/C unit, the manufacturer sticker -2- is on the air distribution housing under the openings for the air to the instrument panel center vents.*



- The manufacturer sticker -2- is visible on the heater and A/C unit only after removing the instrument panel.
- The separating point for the coolant pipes -arrows- is directly on the heater core -1-. The coolant pipes are visible after removing the cover for the left side (driver side).

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4 Repair Information

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⇒ l4.2 nformation", page 20

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⇒ R4.4 outing and Securing", page 21

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⇒ O4.6 utput, Checking", page 22

⇒ O4.7 utput, Checking", page 39

⇒ o4.8 n Refrigerant Circuit", page 57

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⇒ l4.11 nformation", page 59

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⇒ P4.13 lates", page 61

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4.1 Guidelines for Clean Working Conditions

Even small pieces of debris can cause faults. Therefore, observe the following guidelines for cleanliness when working on the A/C system:

- Immediately seal off any open lines and connections with clean plugs, for example taken from the Engine Bung Set -VAS 6122-.
- Place removed parts on a clean surface and cover them with lint-free cloths.
- Carefully cover or seal opened components if repairs are not performed immediately.
- Only install clean parts: remove the replacement parts from their packaging just before installing them. Do not use any parts that have been kept out of packaging (for example, in a toolbox).
- Do not work with compressed air when the system is open.
- Protect the disconnected connectors from dirt and moisture and only connect when they are dry.

4.2 General Information

- Consult the valid wiring diagram. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- An information label in the engine compartment indicates which refrigerant is used and the capacity. Refer to ⇒ L2.1 abels", page 3 .
- For more information about repair procedures on vehicles with A/C and handling refrigerant, refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Repair Procedures; Refrigerant and Refrigerant Oil.

4.3 Contact Corrosion

Contact Corrosion

- Contact corrosion can occur if incorrect fasteners (bolts, nuts, washers, etc.) are used.
- For this reason, only fasteners with a special surface coating are installed.
- Original replacement parts and accessories are recommended which were developed and checked for the respective intended purpose.

4.4 Line Routing and Securing

- Mark the individual fuel, hydraulic and vacuum lines, EVAP system as well as the wires before removing them. This will prevent interchanging them and will ensure the original installation position. Draw sketches or take pictures of them if required.
- Due to the limited space inside the engine compartment, allow sufficient clearance to all moving or hot parts to avoid damaging the lines.
- Check the routing after securing refrigerant lines. They must be inserted in their brackets and must not come into contact with other components.

4.5 Radiator and Condenser Assembly

- The radiator and condenser may have small indentations on the fins even when installed correctly. This is not damage. Do not replace the radiator or condenser because of those small indentations.
- Slight deformations on the side condenser securing straps (for example, due to an accident) that result in an unparallel flow from the condenser and radiator can be repaired by pulling the straps back as long as the function/condenser sealing is not impaired. The condenser does not need to be replaced if there are small deformations on the straps.
- A slight bending of the condenser (up to 4 mm) is permissible as long as there is sufficient distance (minimum 4 mm) between the condenser and the radiator and the function/sealing of the condenser is not impaired. The condenser does not have to be replaced if there are slight deformations.

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4.6 Heating Output, Checking

⇒ O4.6.1 utput Test Information and Tools Required", page 22

⇒ O4.6.2 utput and Temperature Control Door Activation, Checking, Vehicles Without A/C System", page 24

⇒ O4.6.3 utput and Temperature Control Door Activation, Checking, Vehicles with Manual Climate Control System", page 28

⇒ O4.6.4 utput and Temperature Control Door Activation, Checking, Vehicles with Automatic Climate Control System", page 32

4.6.1 Heat Output Test Information and Tools Required

Note

This repair manual only outlines the testing procedure. Perform the detailed test for the "Heating Output of Heater/A/C System, Checking" function as described in the Guided Fault Finding using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

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Special tools and workshop equipment required

- Vehicle Diagnostic Tester
- A commercially available thermometer (for temperature measurement; if necessary, a thermometer with two measuring probes for simultaneous measurement, for example, for temperature on the right and left)

Note

If the coolant circuit is not bled completely after being filled, then air can get into the heater core for the heater in the heater and A/C unit. This will reduce the heating output. Noises may result or the customer may complain that there are different air temperatures coming out of the vents.

Corrective Measure for Poor Heating Output or Noises from Coolant Circuit:

– Perform a road test at an increased engine speed (at least 10 minutes, engine speed above 2500/min). While doing so, select a lower gear/position to prevent excessive vehicle speed and set the heating and A/C system to maximum heating output.

– If the customer complains of poor heating output at certain engine speeds, check the incorporation of the heater core for the heater in the engine coolant circuit. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses).

Note

- *For vehicles without an A/C system or with a manual climate control system (“Basic” A/C system) and Start/Stop function, the Stop function is prevented (for example, in heating mode) depending on the setting on the regulators and buttons (Front A/C Display Control Head 2 -E775-, Front A/C Display Control Head 3 -E776-, Front A/C Display Control Head 4 -E777- and Fresh Air and Recirculating Air Mode Button -E781-). As soon as there is a request for heating, the engine is started. In cooling mode, the Climatronic Control Module -J255- does not limit the Stop function.*
- *If there is no Humidity Sensor -G355- installed on vehicles without an A/C system or with a manual climate control system (“Basic” A/C system version), a permissible stop time is currently calculated by characteristic curves that are influenced by the measured exterior temperature, the “recirculating air mode” function and operating condition of the windshield wipers. The calculated time must be greater than approximately 20 seconds so that the Stop function is permitted by the Climatronic Control Module -J255-. The stop time can be shortened at a lower exterior temperature, when the recirculating air mode is active and/or when it is raining to prevent the windshield and door windows from fogging up. If the calculated time for the Stop function is less than approximately 20 seconds, it is prevented.*
- *For vehicles with an automatic climate control system (“Convenience” A/C system version) and Start/Stop function, the Stop function is prevented depending on the setting on the regulators and buttons (Front A/C Display Control Head 2 -E775-, Front A/C Display Control Head 3 -E776-, Front A/C Display Control Head 4 -E777- and Defrost Button -E782-). If, for example, “defrost” mode is selected, the Stop function is not possible or is canceled and the engine is started as soon as this mode is selected. The same also applies if the difference between the selected specified temperature and the measured actual temperature exceeds a certain value in heating and cooling mode. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.*

- Depending on the engine version, an After-Run Coolant Pump -V51- may be installed in the coolant circuit to support the engine coolant pump. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses) and ⇒ Wiring diagrams, Troubleshooting & Component locations. The After-Run Coolant Pump -V51- can be actuated in “stop mode” (engine stopped) to maintain the coolant flow rate through the heater core for the heater on vehicles with a Start/Stop System.
- Depending on the engine version, a Coolant Shut-Off Valve -N82- may be installed in the coolant circuit. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses) and ⇒ Wiring diagrams, Troubleshooting & Component locations. The Coolant Shut-Off Valve -N82- is then activated by the Engine Control Module -J623-, for example, when heating output is not requested by the Climatronic Control Module -J255- and the engine is still cold. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the engine control module). When the Coolant Shut-Off Valve -N82- is activated, no warmed up coolant can flow through the heater core for the heater.

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4.6.2 Heating Output and Temperature Control Door Activation, Checking, Vehicles Without A/C System

Refer to ⇒ O4.6.1 utput Test Information and Tools Required", page 22

Test Requirements

- Coolant circuit bled according to specifications. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Cooling System/Coolant; Coolant, Draining and Filling.
- All air ducts, covers and seals are OK and properly installed.
- Seal between engine compartment, hood and plenum chamber is OK and installed correctly. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; (Overview - Plenum Chamber Cover) to check.
- If installed: After-Run Coolant Pump -V51- and Coolant Shut-Off Valve -N82- function is OK.
- The airflow through the dust and pollen filter is not obstructed by debris. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247 to check.
- The air intake for the heater (in fresh air and recirculating air mode) is not obstructed by debris or retrofitted components.
- The vehicle is not exposed to sunlight.
- Engine is warm; coolant temperature is greater than 80 °C (176 °F).
- The DTC memory for the Climatronic Control Module -J255- was checked and erased and the basic setting was performed using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
- The coding and adaptation of the Climatronic Control Module -J255- was checked using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
- Vehicles with TDI engine: activation and function of the Auxiliary Heater Heating Element -Z35- is OK. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
- Vehicles with a gasoline engine and an Auxiliary Heater Heating Element -Z35- (introduction not yet finalized): Activation and function of the Auxiliary Heater Heating Element -Z35- is OK. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

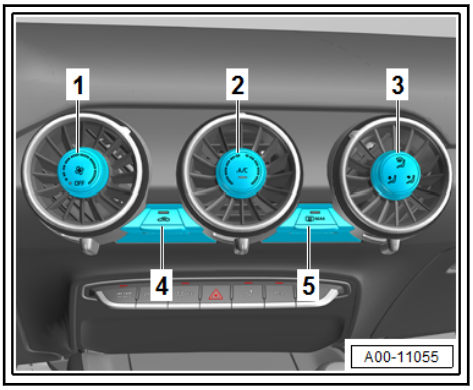
Checking

– Close the hood, doors, windows and sliding sunroof.

– Open all instrument panel vents.

– Start the engine and adjust the following settings on the control heads:

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Note

- *This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle with a manual climate control system. The layout may be different on a RHD vehicle.*
- *A Front A/C Display Control Head 3 -E776- -2- without an A/C button is installed on vehicles without an A/C system (with heating only). Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The designations on the display control heads -1 and 3- should actually read "Heating". However, since heating without an A/C system is only offered in a few markets, the designation "A/C system" was kept for the heating.*

– Start the engine and adjust the following settings on the heater display control heads:

- Turn the regulator -1- (Front A/C Display Control Head 2 -E775-) for the fresh air blower to the maximum speed.
- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the "cold" stop.
- Turn the regulator -3- (Front A/C Display Control Head 4 -E777-) for air distribution to "instrument panel vent".
- Recirculating air mode off: The indicator lamp in the Fresh Air and Recirculating Air Mode Button -E781- -4- does not come on.

– Let the heater run several minutes at this setting with the engine running.

– Measure the ambient temperature.

– Measure the temperature of the air coming out of the left and right instrument panel vents with a thermometer.

– Compare the measured values with the displayed measured value for the Evaporator Vent Temperature Sensor -G263-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

Specified Values:

- After five minutes the measured value for the Evaporator Vent Temperature Sensor -G263- may be a maximum of 15 °C (59 °F) greater than the measured ambient temperature.
- The measured values for the air temperature from the left and right vents must not be lower than the measured value of the Evaporator Vent Temperature Sensor -G263- and also not greater than a maximum of 7 °C (44.6 °F) after five

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minutes. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

- The difference of the measured air temperatures from the left and right vents is less than 8 °C (46.4 °F).

Note

If the measured values for the temperature of the air coming out of the vents is less than the measured value for the Evaporator Vent Temperature Sensor -G263-, this indicates a faulty temperature sensor.

If the specified values are not reached, check the following:

- Check the seal between the engine compartment, hood and plenum chamber and repair if necessary. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; (Overview - Plenum Chamber Cover).
- Repeat the test while measuring the temperature of the air drawn in via the fresh air intake for the heater in the plenum chamber with one of the two temperature sensors with the hood closed. The permissible air temperature increase in the heater (between the air intake in the fresh air intake and the air outlet from the instrument panel vents) is a maximum of 10 °C (50 °F).

If the temperature in the heater increases more than 10 °C (50 °F), check the following:

- Activation and function of the Temperature Control Door Motor -V68- using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
- Function of the temperature control door in the heater. Refer to ⇒ -5.4 Air Distribution Housing Doors and Separators”, page 222 .
- Foam seal on the heater core for the heater. Refer to ⇒ C5.18 ore, Removing and Installing”, page 256 .

– Set the highest possible temperature.

- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “warm” stop.

– Measure the temperature of the air coming out of the left and right instrument panel vents with a thermometer.

Specified values with an engine temperature of approximately 90 °C:

- The temperature of the air from the instrument panel vents goes above 55 °C (131 °F).
- The temperature deviation between the left and right side is less than 8 °C (46.4 °F).

If the specified values are not reached, check the following:

- Coolant circuit bleeding. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Cooling System/Coolant; Coolant, Draining and Filling.
- Incorporation of the heater core for the heater into the coolant circuit. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses).
- Foam seal on the heater core for the heater. Refer to ⇒ C5.18 ore, Removing and Installing”, page 256 .

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- Activation and function of the Temperature Control Door Motor -V68- using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
- Function of the temperature control door in the heater. Refer to ⇒ -5.4 Air Distribution Housing Doors and Separators”, page 222 .
- Engine coolant thermostat. The engine coolant may not heat properly if the coolant thermostat is faulty. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Coolant Pump/Thermostat (Coolant Thermostat, Checking).
- Engine coolant pump. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Coolant Pump/Coolant Regulation (Overview - Coolant Pump).
- If installed: Check the function of the After-Run Coolant Pump -V51- and the Coolant Shut-Off Valve -N82- using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

Note

- *For vehicles without an After-Run Coolant Pump -V51-, set the engine speed to approximately 2000 RPM and repeat the test if necessary. If the air temperature goes above 55 °C (131 °F) when repeating the test at a higher engine speed, this indicates that there is too little coolant flowing through the heater core for the heater. Cause: the delivery rate of the engine coolant pump is too low at idle speed, or the incorporation of the heater core for the heater in the coolant circuit is not according to the specification. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses).*
- *If too little warmed up coolant flows through the heater core for the heater, the required heat output is not reached.*

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– Set the lowest possible temperature.

• Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “cold” stop.

– Measure the temperature of the air coming out of the left and right instrument panel vents with a thermometer.

Specified Values:

- After five minutes the measured value for the Evaporator Vent Temperature Sensor -G263- may be a maximum of 15 °C (59 °F) greater than the measured ambient temperature.
- The measured values for the air temperature from the left and right vents must not be lower than the measured value of the Evaporator Vent Temperature Sensor -G263- and also not greater than a maximum of 7 °C (44.6 °F) after five minutes. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
- The difference of the measured air temperatures from the left and right vents is less than 8 °C (46.4 °F).

If the specified values are not reached, check the following:

- Activation and function of the Temperature Control Door Motor -V68- using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
- Function of the temperature control door in the heater. Refer to ⇒ -5.4 Air Distribution Housing Doors and Separators”, page 222 .

- Foam seal on the heater core for the heater. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .
- Measured value for the Evaporator Vent Temperature Sensor -G263- using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

4.6.3 Heating Output and Temperature Control Door Activation, Checking, Vehicles with Manual Climate Control System

Refer to ⇒ O4.6.1 utput Test Information and Tools Required", page 22

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Test Requirements

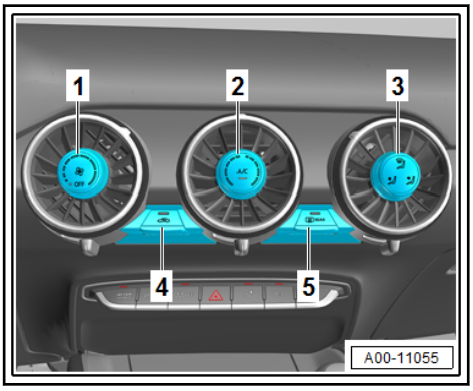
- Coolant circuit bled according to specifications. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant; Coolant, Draining and Filling.
- All air ducts, covers and seals are OK and properly installed.
- Seal between engine compartment, hood and plenum chamber is OK and installed correctly. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; (Overview - Plenum Chamber Cover) to check.
- If installed: After-Run Coolant Pump -V51- and Coolant Shut-Off Valve -N82- function is OK.
- The airflow through the dust and pollen filter is not obstructed by debris. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247 to check.
- The air intake of the heater and A/C unit (in fresh air and recirculating air modes) is not obstructed by dirt or retrofitted components.
- The vehicle is not exposed to sunlight.
- The A/C system cooling output was checked and is OK. Refer to ⇒ O4.7.3 utput, Checking, Vehicles with Manual A/C System", page 43 .
- Engine is warm: Coolant temperature is greater than 80 °C (176 °F).
- The DTC memory for the Climatronic Control Module -J255- was checked and erased and the basic setting was performed using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
- The coding and adaptation of the Climatronic Control Module -J255- was checked using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
- Vehicles with TDI engine: Activation and function of the Auxiliary Heater Heating Element -Z35- is OK. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Engine Control Module -J623-).
- Vehicles with a gasoline engine and an Auxiliary Heater Heating Element -Z35- (introduction not yet finalized): Activation and function of the Auxiliary Heater Heating Element -Z35- is OK. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

Checking

– Close the hood, doors, windows and sliding sunroof.

– Open all instrument panel vents.

– Start the engine and adjust the following settings on the control heads:



Note

This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.

- Turn the regulator -1- (Front A/C Display Control Head 2 -E775-) for the fresh air blower to the maximum speed.
- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “cold” stop.
- Turn the regulator -3- (Front A/C Display Control Head 4 -E777-) for air distribution to “instrument panel vent”.
- A/C compressor on: the indicator lamp in the A/C button (in regulator -2-) illuminates.
- Recirculating air mode off: The indicator lamp in the Fresh Air and Recirculating Air Mode Button -E781- -4- does not come on.

– Let the A/C system run for several minutes at maximum cooling output with the engine running.

– Measure the temperature of the air coming out of the left and right instrument panel vents with a thermometer.

– Compare the measured values with the displayed measured value for the Evaporator Vent Temperature Sensor -G263-. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

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Specified Values:

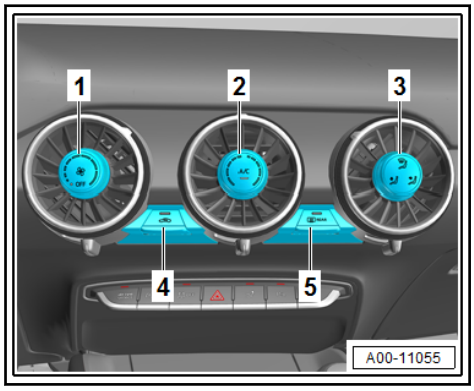
- The measured values for the air temperature from the left and right vents must not be lower than the measured value of the Evaporator Vent Temperature Sensor -G263- and also not greater than a maximum of 7 °C (44.6 °F) after five minutes. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
- The difference of the measured air temperatures from the left and right vents is less than 8 °C (46.4 °F).

If the specified values are not reached, check the following:

♦ Activation and function of the Temperature Control Door Motor -V68- using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

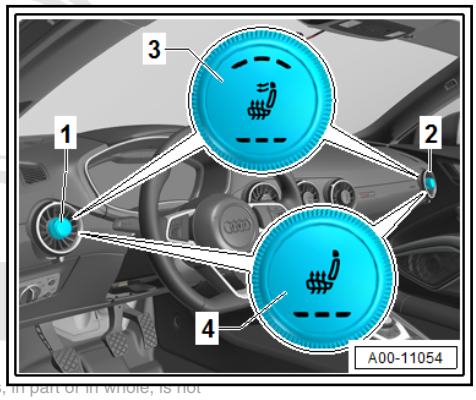
- Function of the temperature control door in the heater and A/C unit. Refer to ⇒ D5.12 istribution Housing, Removing and Installing", page 246 .
- Foam seal on the heater core for the heater. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

– Set the highest possible temperature.



- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the "warm" stop.

– Measure the temperature of the air coming out of the left -1- and right -2- instrument panel vents with a thermometer.



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Specified values with an engine temperature of approximately 90 °C:

- The temperature of the air from the instrument panel vents goes above 55 °C (131 °F).
- The temperature deviation between the left and right side is less than 8 °C (46.4 °F).

If the specified values are not reached, check the following:

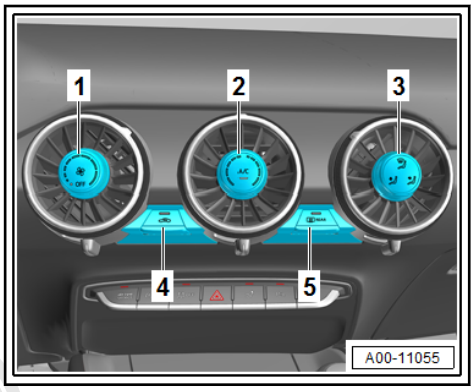
- Coolant circuit bleeding. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant; Coolant, Draining and Filling.
- Incorporation of the heater core for the heater in the coolant circuit. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses).
- Foam seal on the heater core for the heater. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .
- Activation and function of the Temperature Control Door Motor -V68- using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

- Function of the temperature control door in the heater and A/C unit. Refer to ⇒ D5.12 istribution Housing, Removing and Installing", page 246 .
- Engine coolant thermostat. The engine coolant may not heat properly if the coolant thermostat is faulty. Refer to ⇒ Rep. Gr. 19; Coolant Pump/Thermostat (Coolant Thermostat, Checking).
- Engine coolant pump. Refer to ⇒ Rep. Gr. 19; Coolant Pump/Thermostat (Overview - Coolant Pump).
- If installed: check the function of the After-Run Coolant Pump -V51- and the Coolant Shut-Off Valve -N82-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Engine Control Module -J623-).

Note

- *For vehicles without an After-Run Coolant Pump -V51-, set the engine speed to approximately 2000 RPM and repeat the test if necessary. If the air temperature goes above 55 °C (131 °F) when repeating the test at a higher engine speed, this indicates that there is too little coolant flowing through the heater core for the heater. Cause: the delivery rate of the engine coolant pump is too low at idle speed, or the incorporation of the heater core for the heater in the coolant circuit is not according to the specification. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses).*
- *If too little warmed up coolant flows through the heater core for the heater, the required heat output is not reached.*

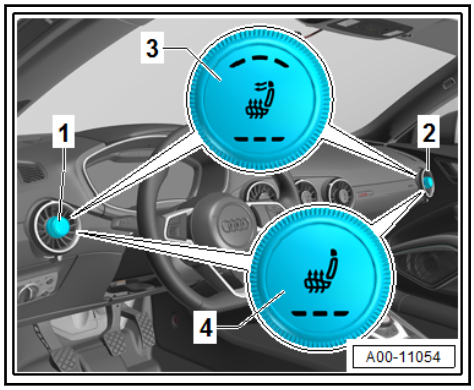
– Set the lowest possible temperature.



• Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the "cold" stop.

– Measure the temperature of the air coming out of the left -1- and right -2- instrument panel vents with a thermometer.

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– Compare the measured values with the displayed measured value for the Evaporator Vent Temperature Sensor -G263-. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

Specified Values:

- The measured values must not be smaller than the measured value of the Evaporator Vent Temperature Sensor -G263- and also not greater than a maximum of 7 °C (44.6 °F) after five minutes. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
- The deviation of the measured air temperatures from the left and right vents is less than 8 °C (46.4 °F).

If the specified values are not reached, check the following:

♦ Activation and function of the Temperature Control Door Motor -V68- using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

♦ Function of the temperature control door in the heater and A/C unit. Refer to ⇒ D5.12 istribution Housing, Removing and Installing”, page 246 .

♦ Foam seal on the heater core for the heater. Refer to ⇒ C5.18 ore, Removing and Installing”, page 256 .

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4.6.4 Heating Output and Temperature Control Door Activation, Checking, Vehicles with Automatic Climate Control System

Refer to ⇒ O4.6.1 utput Test Information and Tools Required”, page 22

Test Requirements

- Coolant circuit bled according to specifications. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant; Coolant, Draining and Filling.
- All air ducts, covers and seals are OK and properly installed.
- Seal between engine compartment, hood and plenum chamber is OK and installed correctly. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; (Overview - Plenum Chamber Cover) to check.
- The airflow through the dust and pollen filter is not obstructed by debris. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing”, page 247 to check.

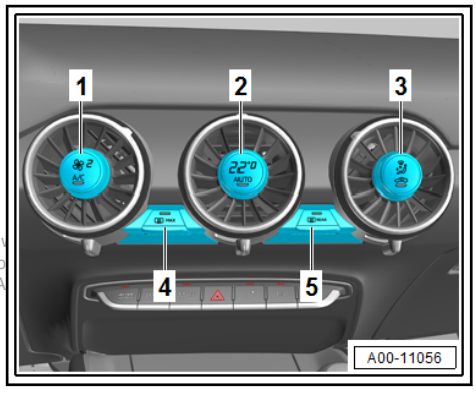
- The air intake of the heater and A/C unit (in fresh air and recirculating air modes) is not obstructed by dirt or retrofitted components.
- If installed: After-Run Coolant Pump -V51- and the Coolant Shut-Off Valve -N82- function must be OK.
- The vehicle is not exposed to sunlight.
- The A/C system cooling output was checked and is OK. Refer to ⇒ O4.7.4 utput, Checking, Vehicles with Automatic Climate Control System", page 48 .
- Engine is warm: Coolant temperature is greater than 80 °C (176 °F).
- The DTC memory for the Climatronic Control Module -J255- was checked and erased and the basic setting was performed using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
- The coding and adaptation of the Climatronic Control Module -J255- was checked using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
- Vehicles with TDI engine: the activation and function of the Auxiliary Heater Heating Element -Z35- is OK. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Engine Control Module -J623-).
- Vehicles with a gasoline engine and an Auxiliary Heater Heating Element -Z35- (introduction not yet finalized): Activation and function of the Auxiliary Heater Heating Element -Z35- is OK. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

Checking

– Close the doors, hood, windows, sliding sunroof and rear lid.

– Open all instrument panel vents.

– Start the engine and adjust the following settings on the control head:



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Note

- *This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.*
- *The information in the regulators -1, 2 and 3- is only displayed when the ignition is switched on and goes out when the ignition is switched off.*

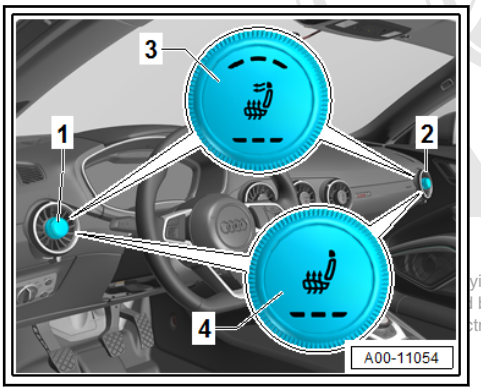
- Turn the regulator -1- (Front A/C Display Control Head 2 -E775-) for the fresh air blower to the maximum speed.
- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “cold” stop.
- Turn the regulator -3- (Front A/C Display Control Head 4 -E777-) for air distribution to “instrument panel vent”.
- A/C compressor on: the indicator lamp in the A/C button (in regulator -1-) illuminates.
- Recirculating air mode off: the indicator lamp for “recirculating air mode” in the Recirculation button (in the regulator -3-) does not come on.
- “Auto” mode on: The indicator lamp in the Auto button (in the regulator -2-) illuminates.
- Defrost mode off: the indicator lamp in the Defrost Button -E782- -4- does not come on.

– Let the A/C system run for several minutes at maximum cooling output with the engine running.

– “Read the measured values” for the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-) and the Evaporator Vent Temperature Sensor -G263- using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

Note

The designation and the component location of the vent temperature sensors (Left Vent Temperature Sensor -G150- and Right Vent Temperature Sensor -G151-) is different. The Left Vent Temperature Sensor -G150- is installed in the air duct to the left instrument panel vent -1- on LHD vehicles. The Right Vent Temperature Sensor -G151- is installed in the air duct to the right instrument panel vent on RHD vehicles.



– Measure the temperature of the air coming out of the right instrument panel vent -2- with a thermometer (left vent on a RHD vehicle).

– Compare the measured values of the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-), Footwell Vent Temperature Sensor -G192- and the temperature measured using a thermometer with the measured value for the Evaporator Vent Temperature Sensor -G263-.

Specified Values:

- The measured values for the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-), Footwell Vent Temperature Sensor -G192- and the measured temperature must not be smaller than the value for the

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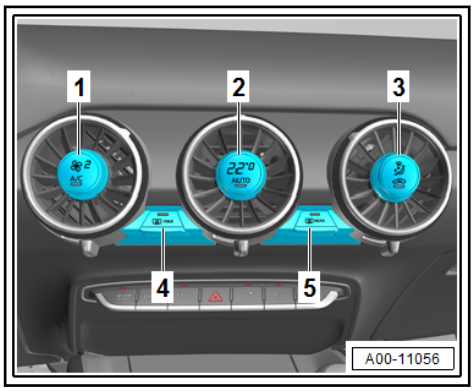
Evaporator Vent Temperature Sensor -G263- and also not greater than a maximum of 7 °C (44.6 °F) after five minutes. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

- The deviation between the measured value for the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-) and the temperature measured with the thermometer must not be greater than 8 °C (46.4 °F).

Note

- *Using a hand, check if there is actually air coming out of the activated vents.*
- *Depending on the selected temperature, both the Left Temperature Control Door Motor -V158- and Right Temperature Control Door Motor -V159- are rotated together between the end stops programmed in the “basic setting” function. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).*

– Set the highest possible temperature.



- Preselect “Warm” via the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting (“HI”).

– “Read the measured values” for the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-) and Footwell Vent Temperature Sensor -G192-.

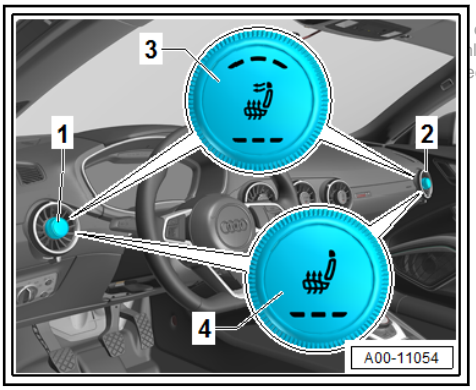
– Measure the temperature of the air coming out of the right instrument panel vent with a thermometer (left vent on a RHD vehicle).

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Note

The designation and the component location of the vent temperature sensors (Left Vent Temperature Sensor -G150- and Right Vent Temperature Sensor -G151-) is different. The Left Vent Temperature Sensor -G150- is installed in the air duct to the left instrument panel vent -1- on LHD vehicles. The Right Vent Temperature Sensor -G151- is installed in the air duct to the right instrument panel vent -2- on RHD vehicles.



Specified values with an engine temperature of approximately 90 °C (194 °F):

- The temperature increases to above 55 °C (131 °F) in the display field with the measured value for the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-) and Footwell Vent Temperature Sensor -G192-.
- The temperature deviation between the left and right side is less than 8 °C (46.4 °F).

If the specified values are not reached, check the following:

- Coolant circuit bleeding. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant; Coolant, Draining and Filling.
- Incorporation of the heater core for the heater in the coolant circuit. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses).
- Foam seal on the heater core for the heater. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .
- Activation and function of the Left Temperature Control Door Motor -V158- and the Right Temperature Control Door Motor -V159-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).
- Measured values for the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-) and Footwell Vent Temperature Sensor -G192-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).
- Function of the temperature control doors for the left and right side in the heater and A/C unit. Refer to ⇒ D5.12 istribution Housing, Removing and Installing", page 246 .
- Engine coolant thermostat. The engine coolant may not heat properly if the coolant thermostat is faulty. Refer to ⇒ Rep. Gr. 19; Coolant Pump/Thermostat (Coolant Thermostat, Checking).
- Engine coolant pump. Refer to ⇒ Rep. Gr. 19; Coolant Pump/Thermostat (Overview - Coolant Pump).

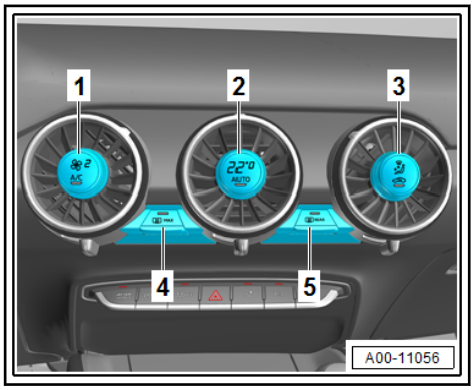
- If installed: check the function of the After-Run Coolant Pump -V51- and the Coolant Shut-Off Valve -N82-. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Engine Control Module -J623-).

Note

- *For vehicles without an After-Run Coolant Pump -V51-, set the engine speed to approximately 2000 RPM and repeat the test if necessary. If the air temperature goes above 55 °C (131 °F) when repeating the test at a higher engine speed, this indicates that there is too little coolant flowing through the heater core for the heater. Cause: the delivery rate of the engine coolant pump is too low at idle speed, or the incorporation of the heater core for the heater in the coolant circuit is not according to the specification. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses).*
- *If too little warmed up coolant flows through the heater core for the heater, the required heat output is not reached.*

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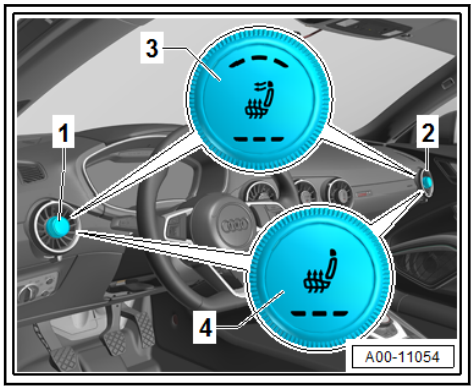
– Set the lowest possible temperature.



- Preselect “Cold” via the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting (“LO”).

– “Read the measured values” for the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-), Footwell Vent Temperature Sensor -G192- and Evaporator Vent Temperature Sensor -G263-.

– Measure the temperature of the air coming out of the right instrument panel vent -2- with a thermometer (left vent on a RHD vehicle).



Note

The designation and the component location of the vent temperature sensors (Left Vent Temperature Sensor -G150- and Right Vent Temperature Sensor -G151-) is different. The Left Vent Temperature Sensor -G150- is installed in the left instrument panel vent on LHD vehicles. The Right Vent Temperature Sensor -G151- is installed in the right instrument panel vent on RHD vehicles.

– Compare the measured values of the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-), Footwell Vent Temperature Sensor -G192- and the temperature measured using a thermometer with the measured value for the Evaporator Vent Temperature Sensor -G263-.

Specified Values:

- The measured values for the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-), Footwell Vent Temperature Sensor -G192- and the temperature measured with the thermometer must not be smaller than the value for the Evaporator Vent Temperature Sensor -G263- and also not greater than a maximum of 7 °C (44.6 °F) after five minutes. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).
- The deviation between the measured values for the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-), Footwell Vent Temperature Sensor -G192- and the temperature measured with the thermometer must not be greater than 8 °C (46.4 °F).

If the specified values are not reached, check the following:

- Activation and function of the Left Temperature Control Door Motor -V158- and the Right Temperature Control Door Motor -V159-. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).
- Function of the temperature control doors for the left and right side in the heater and A/C unit. Refer to ⇒ D5.12 istribution Housing, Removing and Installing”, page 246 .
- Foam seal on the heater core for the heater. Refer to ⇒ C5.18 ore, Removing and Installing”, page 256 .
- Check the measured values for the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-), Footwell Vent Temperature Sensor -G192- and Evaporator Vent Temperature Sensor -G263-. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

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4.7 Cooling Output, Checking

⇒ o4.7.1 n Checking Cooling Output and Tools Required", page 39

⇒ R4.7.2 equirements", page 40

⇒ O4.7.3 utput, Checking, Vehicles with Manual A/C System", page 43

⇒ O4.7.4 utput, Checking, Vehicles with Automatic Climate Control System", page 48

⇒ M4.7.5 alfunction if Deviation from Specified Value", page 54

⇒ M4.7.6 alfunction of Temperature Increase Downstream from Evaporator", page 55

⇒ M4.7.7 alfunction for Ice Build-Up on Evaporator", page 56

4.7.1 Information on Checking Cooling Output and Tools Required

Note

This repair manual only outlines the testing procedure. Perform the detailed test for this heating and A/C system function as described in Guided Fault Finding. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

Special tools and workshop equipment required

- Vehicle Diagnostic Tester
- A commercially available thermometer (for temperature measurement; if necessary, a thermometer with two measuring probes for simultaneous measurement, for example, for temperature on the right and left)

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Note

- *For vehicles with a manual climate control system (“Basic” A/C system version) and Start/Stop function, the Stop function is prevented (for example, in heating mode) depending on the setting on the regulators and buttons (Front A/C Display Control Head 2 -E775-, Front A/C Display Control Head 3 -E776-, Front A/C Display Control Head 4 -E777- and Fresh Air and Recirculating Air Mode Button -E781-). As soon as there is a request for heating, the engine is started. In cooling mode, the Climatronic Control Module -J255- does not limit the Stop function.*
- *If there is no Humidity Sensor -G355- installed on vehicles with a manual climate control system (“Basic” A/C system version), a permissible stop time is currently calculated by characteristic curves that are influenced by the measured exterior temperature, the “recirculating air mode” function and operating condition of the windshield wipers. The calculated time must be greater than approximately 20 seconds so that the Stop function is permitted by the Climatronic Control Module -J255-. The stop time can be shortened at a lower exterior temperature, when the recirculating air mode is active and/or when it is raining to prevent the windshield and door windows from fogging up. If the calculated time for the Stop function is less than approximately 20 seconds, it is prevented.*
- *For vehicles with an automatic climate control system (“Convenience” A/C system version) and Start/Stop function, the Stop function is prevented depending on the setting on the regulators and buttons (Front A/C Display Control Head 2 -E775-, Front A/C Display Control Head 3 -E776-, Front A/C Display Control Head 4 -E777- and Defrost Button -E782-). If, for example, “defrost” mode is selected, the Stop function is not possible or is canceled and the engine is started as soon as this mode is selected. The same also applies if the difference between the selected specified temperature and the measured actual temperature exceeds a certain value in heating and cooling mode. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.*

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4.7.2 Test Requirements

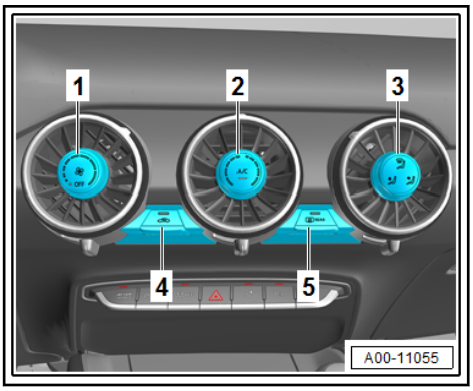
- Ambient temperature greater than 15 ºC (59 °F).
- Radiator and condenser are clean (clean if necessary).
- The ribbed belt that drives the A/C compressor is OK and tensioned correctly. The belt pulley is actually driving the A/C compressor.
- All air ducts, covers and seals are OK and properly installed.
- Seal between the engine compartment, hood and plenum chamber is OK and installed correctly. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; (Overview - Plenum Chamber Cover) to check.
- The airflow through the dust and pollen filter is not obstructed by debris. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing”, page 247 to check.
- The air intake for the A/C unit (in fresh air and recirculating air mode) is not obstructed by dirt or retrofitted components.
- Vehicles without glove compartment cooling: The glove compartment cooling connection is sealed on the heater and A/C unit. Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior”, page 282 .

- Vehicles with glove compartment cooling: The glove compartment cooling connection is installed on the heater and A/C unit according to specification (currently not available, introduction not yet finalized). Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior", page 282 .
- The vehicle is not exposed to sunlight.
- Engine is warm: Coolant temperature is greater than 80 °C (176 °F).
- The DTC memory of the Climatronic Control Module -J255- was checked and deleted, basic setting was performed and the coding for the Climatronic Control Module -J255- was checked. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
- The adaptation of the Climatronic Control Module Climatronic Control Module -J255- was checked using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
- All instrument panel vents are open.
- Check that the air vent from the footwell vents is not blocked.
- Front lid closed.
- Engine is running.

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Vehicles with Manual Climate Control System:

– Adjust the following settings on the A/C system control heads:



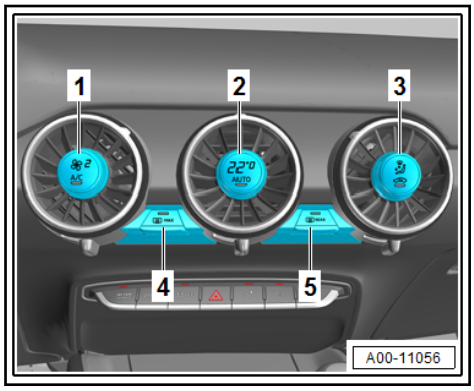
Note

This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.

- Turn the regulator -1- (Front A/C Display Control Head 2 -E775-) for the fresh air blower to the maximum speed.
- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the "cold" stop.
- Turn the regulator -3- (Front A/C Display Control Head 4 -E777-) for air distribution to "instrument panel vent".
- A/C compressor on: The indicator lamp in the A/C button (in regulator -2-) illuminates.
- Recirculating air mode on: The indicator lamp in the Fresh Air and Recirculating Air Mode Button -E781- -4- illuminates.

Vehicles with Automatic Climate Control System:

– Adjust the following settings on the A/C system control heads:



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Note

- *This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.*
- *The information in the regulators -1, 2 and 3- is only displayed when the ignition is switched on and goes out when the ignition is switched off.*

- "Auto" mode on: The indicator lamp in the Auto button (in the regulator -2-) illuminates.
- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the "cold" stop.
- Turn the regulator -3- (Front A/C Display Control Head 4 -E777-) for air distribution to "instrument panel vent".
- A/C compressor on: The indicator lamp in the A/C button (in regulator -1-) illuminates.
- Recirculating air mode on: The indicator lamp for "recirculating air mode" in the Recirculation button (in the regulator -3-) illuminates.
- Turn the regulator -1- (Front A/C Display Control Head 2 -E775-) for the fresh air blower to the maximum speed.
- Defrost mode off: the indicator lamp in the Defrost Button -E782- -4- does not come on.

Note

The indicator lamp in the AUTO button -2- turns off when the fresh air blower speed is changed manually.

Continuation for All Vehicles:

Note

The maximum possible fresh air blower speed depends on various ambient influences (electrical system voltage, etc.)

Functions with Engine Running:

- One or both of the Radiator Fan -V7-/Radiator Fan 2 -V177- run. The activation and speed depend on the pressure in the refrigerant circuit and the engine temperature.

Note

- *Depending on the version of the Climatronic Control Module -J255-, one or both of the Radiator Fan -V7-/Radiator Fan 2 -V177- are switched on only from a certain refrigerant circuit pressure (currently from a pressure of approximately 9 bar (130.53 psi)). The radiator fan activation is displayed in the "Read measured values" function. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255- and the Engine Control Module -J623-).*
- *Depending on the engine control module, the specified and actual speed of the Radiator Fan -V7- and Radiator Fan 2 -V177- can vary from each another. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Engine Control Module Engine/Motor Control Module -J623-).*

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- The fresh air blower runs at maximum speed.

Note

The maximum possible fresh air blower speed depends on various ambient influences (electrical system voltage, etc.)

- The A/C system goes into recirculating air mode. Approximately one minute after starting the engine, the back pressure/fresh air door is closed and the air recirculation door is opened. The fresh air blower extracts the air from the vehicle interior under the instrument panel behind the glove compartment.

If one of these requirements is not met:

– Check the DTC memory, perform the output diagnostic test mode and read the respective measured values. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

Refer to ⇒ O4.7.3 utput, Checking, Vehicles with Manual A/C System", page 43

Refer to ⇒ O4.7.4 utput, Checking, Vehicles with Automatic Climate Control System", page 48

4.7.3 Cooling Output, Checking, Vehicles with Manual A/C System

Refer to ⇒ o4.7.1 n Checking Cooling Output and Tools Required", page 39

Note

This repair manual only outlines the testing procedure. Perform the detailed test for this heating and A/C system function as described in Guided Fault Finding. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

Procedure

- The cooling output test requirements are met. Refer to ⇒ R4.7.2 equirements", page 40 .

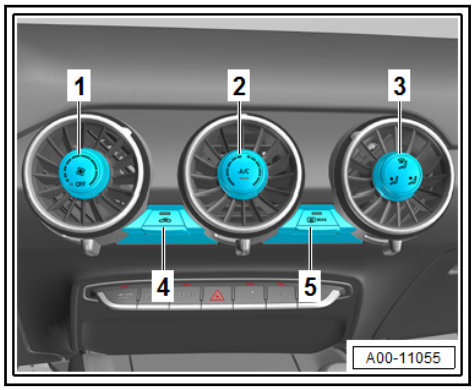
– Measure the ambient temperature: It must be greater than 15 °C (59 °F).

– Close the doors, hood, windows, sliding sunroof and rear lid.

– Open all instrument panel vents.

– Start the engine.

– Adjust the following settings on the A/C system control heads:



Note

This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.

– Switch off the A/C compressor on the Front A/C Display Control Head 3 -E776- -2-: the indicator lamp in the A/C button (in the regulator -2-) does not come on.

– Select the "Read measured values" function using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module Climatronic Control Module -J255-).

Checking

– Read the activation of the A/C Compressor Regulator Valve -N280-.

- The activation of the A/C compressor (by the A/C Compressor Regulator Valve -N280-) is switched off: 0 A (amps) or 0% will be displayed.

– Read the measured value for the Refrigerant Circuit Pressure Sensor -G805-.

- The refrigerant circuit pressure is same at the measured ambient temperature or is greater than the value in the table.

Ambient Temperature in °C	Displayed Pressure (Pressure in bar)
15 (59 °F)	3.0 (43.51 psi)
20 (68 °F)	4.0 (58.02 psi)
25 (77 °F)	5.0 (72.52 psi)
30 (86 °F)	6.0 (87.02 psi)

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Ambient Temperature in °C	Displayed Pressure (Pressure in bar)
35 (95 °F)	7.0 (101.53 psi)

Note

- *At absolute pressure, 0 bar (0 psi) corresponds to absolute vacuum. Normal ambient pressure equals approximately 1 bar (14.5 psi) absolute pressure and 0 bar (0 psi) pressure. On the scales of most pressure gauges, 0 bar (0 psi) pressure corresponds to an absolute pressure of one bar (can be seen from -1 mark below 0).*
- *Pressure in refrigerant circuit is governed by the ambient temperature. Due to the heat given off by components (for example, the radiator), the pressure displayed with a warm engine will be slightly higher than that given for the respective ambient temperature.*

If the displayed pressure in the refrigerant circuit is lower than in the table:

– Check the signal for the Refrigerant Circuit Pressure Sensor -G805- using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

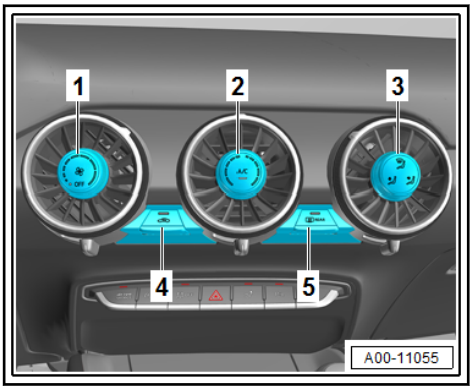
If no fault can be detected on the Refrigerant Circuit Pressure Sensor -G805-, there is too little refrigerant in the circuit.

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– The necessary work procedures may only be performed by qualified personnel. If this is not possible, bring the vehicle to a workshop that has the necessary tools and in which the work can be performed by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Legal Texts and Regulations. Bring the detected problems to the attention of the workshop.

If the displayed pressure in the refrigerant circuit is OK:

– Adjust the following settings on the A/C system control heads:



- Turn the regulator -1- (Front A/C Display Control Head 2 -E775-) for the fresh air blower to the maximum speed.
- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “cold” stop.
- Turn the regulator -3- (Front A/C Display Control Head 4 -E777-) for air distribution to “instrument panel vent”.

- A/C compressor on: The indicator lamp in the A/C button (in regulator -2-) illuminates.

– “Read the measured values” using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

– Check the information in the display fields:

- The current calculated by the Climatronic Control Module -J255-, which flows via the A/C Compressor Regulator Valve -N280-, is greater than 0.3 amps (30%). The A/C compressor is switched on.
- The displayed pressure goes over the value when the A/C compressor is switched off.

If the displayed pressure does not change and the activation of the A/C compressor is OK:

– Check once more if the calculated current is actually flowing via the A/C Compressor Regulator Valve -N280- and the A/C compressor is actually being driven.

If the current is actually flowing via the A/C Compressor Regulator Valve -N280- and the A/C compressor is being driven, then the fault is in the refrigerant circuit. It is possible that the A/C compressor regulation is not OK.

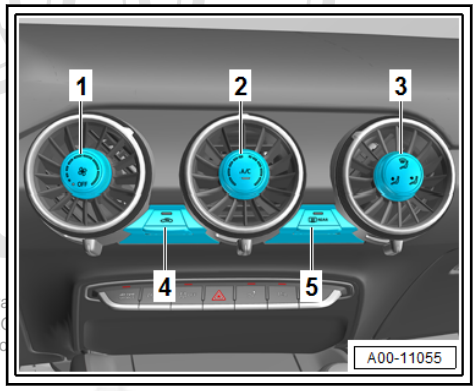
– The necessary work procedures may only be performed by qualified personnel. If this is not possible, bring the vehicle to a workshop that has the necessary tools and in which the work can be performed by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Legal Texts and Regulations. Bring the detected problems to the attention of the workshop.

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Note

- *The Climatronic Control Module -J255- actuates the A/C Compressor Regulator Valve -N280- so that the air temperature reaches the specified value downstream of the evaporator (approximately 2 to 6 °C (35.6 to 42.8 °F)).*
- *After starting the vehicle, a value greater than 0.55 A (75%) is displayed for the activation of the A/C Compressor Regulator Valve -N280- depending on the measured temperature, the engine speed and the electrical system voltage. As soon as the temperature measured by the Evaporator Vent Temperature Sensor -G263- nears the specified value, the activation is canceled and thereby the compressor output is reduced.*
- *Under certain operating conditions, moisture in the refrigerant circuit can lead to ice build-up on the A/C Compressor Regulator Valve -N280- and on the expansion valve. This ice build-up interferes with A/C compressor regulation. The evaporator is cooled too intensely and freezes. The freeze-up of the evaporator can be the cause for various customer complaints. Refer to ⇒ M4.7.7 alfunction for Ice Build-Up on Evaporator”, page 56 .*
- *If little or no current is displayed in the measured values for the A/C Compressor Regulator Valve -N280- activation, check the activation of the A/C Compressor Regulator Valve -N280-. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).*

– Switch on the recirculating air mode at the Fresh Air and Recirculating Air Mode Button -E781-.



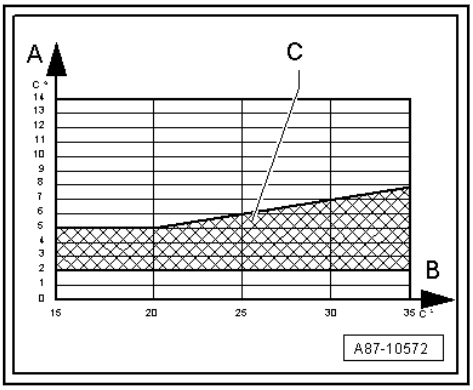
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- The indicator lamp for “recirculating air mode” in the button -4- illuminates.

– Set the engine speed to 2000 rpm (start of time measurement).

– “Read the measured values” using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

– Compare the displayed measured value for the Evaporator Vent Temperature Sensor -G263- with the values in the diagram.



A - Air temperature measured by the Evaporator Vent Temperature Sensor -G263-

B - Ambient Temperature

C - Permissible Tolerance Range

- Depending on the ambient temperature, the measured air temperature must be within the specified tolerance range after 5 minutes.

If the requested values are not reached:

– Measure the temperature of the air coming out of the left and right instrument panel vents with a thermometer.

– Compare the measured value with the displayed measured value for the Evaporator Vent Temperature Sensor -G263-.

If the measured values only slightly deviate from each other:

– Perform the procedure for identifying malfunctions if there is a deviation from the specified value. Refer to ⇒ M4.7.5 al-function if Deviation from Specified Value”, page 54 .

If the measured value for the Evaporator Vent Temperature Sensor -G263- is greater than the determined measured value:

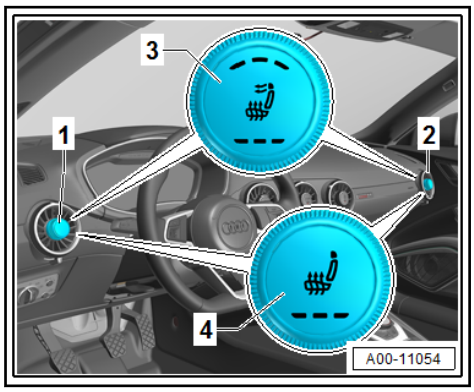
– Make sure the Evaporator Vent Temperature Sensor -G263- is installed correctly (refer to ⇒ E5.7 vaporator Vent Temperature SensorG263, Removing and Installing", page 237) and perform an electrical test for this sensor. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

Note

The A/C system function can be recognized, for example, by the refrigerant pipe on the low pressure side (thick line from the inner heat exchanger to the A/C compressor) cooling off. Refer to ⇒ O2.1 verview - Refrigerant Circuit", page 101 .

If the measured value for the Evaporator Vent Temperature Sensor -G263- and the A/C system cooling output is OK:

– Measure the temperature of the air coming out of the left -1- and right -2- instrument panel vents with a thermometer.



– Compare the measured values on the thermometer and for the Evaporator Vent Temperature Sensor -G263-.

- The determined measured values must not be smaller than the value for the Evaporator Vent Temperature Sensor -G263- and also not greater than a maximum of 7 °C (44.6 °F) after five minutes.

If the determined measured values are smaller:

– Make sure the Evaporator Vent Temperature Sensor -G263- is installed correctly and check its connectors for contact resistance. Replace a faulty sensor. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

If the requested values are not reached:

– Check the actuation and function of the temperature control door. To do so, determine the malfunction when the temperature increases downstream of the evaporator. Refer to ⇒ M4.7.6 alfunction of Temperature Increase Downstream from Evaporator", page 55 and use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

4.7.4 Cooling Output, Checking, Vehicles with Automatic Climate Control System

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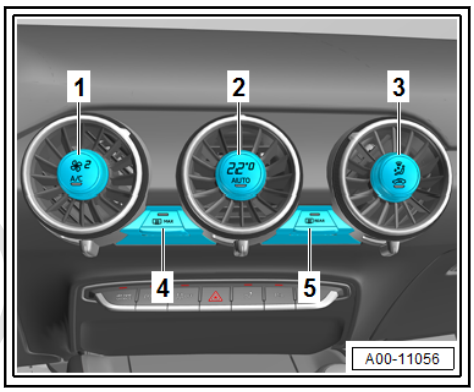
Refer to ⇒ o4.7.1 n Checking Cooling Output and Tools Required", page 39

Note

This repair manual only outlines the testing procedure. Perform the detailed test for this heating and A/C system function as described in the Guided Fault Finding using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

Procedure

- ♦ The cooling output test requirements are met. Refer to ⇒ R4.7.2 equirements", page 40 .
- – Measure the ambient temperature: It must be greater than 15 °C (59 °F).
- – Close the doors, hood, windows, sliding sunroof and rear lid.
- – Open all instrument panel vents and, if equipped, the vents in the rear center console.
- – Start the engine.
- – Adjust the following settings on the A/C system control heads:



Note

- ♦ *This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.*
- ♦ *The information in the regulators -1, 2 and 3- is only displayed when the ignition is switched on and goes out when the ignition is switched off.*

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- • Switch off the A/C compressor on the Front A/C Display Control Head 2 -E775- -1-: The indicator lamp in the A/C button (in the regulator -1-) does not come on.
- – "Read the measured values" using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

Checking

- – Read the activation of the A/C Compressor Regulator Valve -N280-.
- • The activation of the A/C compressor (by the A/C Compressor Regulator Valve -N280-) is switched off: 0 A (amps) or 0% will be displayed.
- – Read the measured value for the Refrigerant Circuit Pressure Sensor -G805-.

- The refrigerant circuit pressure is same at the measured ambient temperature or is greater than the value in the table.

Ambient Temperature in °C	Displayed Pressure (Pressure in bar)
15 (59 °F)	3.0 (43.51 psi)
20 (68 °F)	4.0 (58.02 psi)
25 (77 °F)	5.0 (72.52 psi)
30 (86 °F)	6.0 (87.02 psi)
35 (95 °F)	7.0 (101.53 psi)

Note

- *At absolute pressure, 0 bar (0 psi) corresponds to absolute vacuum. Normal ambient pressure equals approximately 1 bar (14.5 psi) absolute pressure and 0 bar (0 psi) pressure. On the scales of most pressure gauges, 0 bar (0 psi) pressure corresponds to an absolute pressure of one bar (can be seen from -1 mark below 0).*
- *Pressure in refrigerant circuit is governed by the ambient temperature. Due to the heat given off by components (for example, the radiator), the pressure displayed with a warm engine will be slightly higher than that given for the respective ambient temperature.*

If the displayed pressure in the refrigerant circuit is lower than in the table:

– Check the signal for the Refrigerant Circuit Pressure Sensor -G805- using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

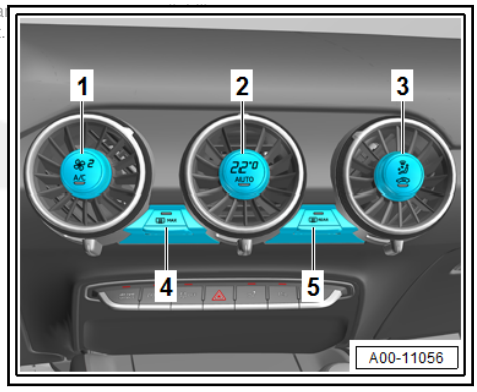
If no fault can be detected on the Refrigerant Circuit Pressure Sensor -G805-, there is too little refrigerant in the circuit.

– The necessary work procedures may only be performed by qualified personnel. If this is not possible, bring the vehicle to a workshop that has the necessary tools and in which the work can be performed by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Legal Texts and Regulations. Bring the detected problems to the attention of the workshop.

If the displayed pressure in the refrigerant circuit is OK:

– Adjust the following settings on the Climatronic Control Module -J255- control head:

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- “Auto” mode on: The indicator lamp in the Auto button (in the regulator -2-) illuminates.
- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “cold” stop.
- A/C compressor on: the indicator lamp in the A/C button (in regulator -1-) illuminates.
- Turn the regulator -1- (Front A/C Display Control Head 2 -E775-) for the fresh air blower to the maximum speed.
- Turn the regulator -3- (Front A/C Display Control Head 4 -E777-) for air distribution to “instrument panel vent”.
- Recirculating air mode off: the indicator lamp for “recirculating air mode” in the Recirculation button (in the regulator -3-) does not come on.
- Defrost mode off: the indicator lamp in the Defrost Button -E782- -4- does not come on.

– “Read the measured values” using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

– Check the information in the display fields:

- If a displayed current that is flowing via the A/C Compressor Regulator Valve -N280- is greater than 0.3 amps (30%): the A/C compressor is switched on.
- The displayed pressure goes over the value when the A/C compressor is switched off.

If the displayed pressure does not change and the activation of the A/C compressor is OK:

– Check once more if the A/C compressor is actually being driven and the A/C Compressor Regulator Valve -N280- is being activated.

If the current is actually flowing via the A/C Compressor Regulator Valve -N280- and the A/C compressor is being driven, then the fault is in the refrigerant circuit. It is possible that the A/C compressor regulation is not OK.

– The necessary work procedures may only be performed by qualified personnel. If this is not possible, bring the vehicle to a workshop that has the necessary tools and in which the work can be performed by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Legal Texts and Regulations (the A/C compressor regulation may not be OK). Bring the detected problems to the attention of the workshop.

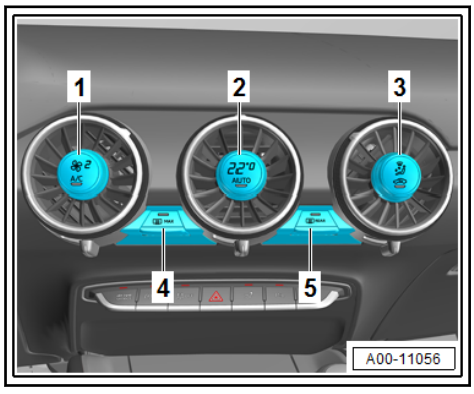
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Note

- *The Climatronic Control Module -J255- actuates the A/C Compressor Regulator Valve -N280- so that the air temperature reaches the specified value downstream of the evaporator (approximately 2 to 6 °C (35.6 to 42.8 °F)).*
- *After starting the vehicle, a value greater than 0.55 A is displayed for the activation of the A/C Compressor Regulator Valve -N280- depending on the measured temperature, the engine speed and the electrical system voltage. As soon as the temperature measured by the Evaporator Vent Temperature Sensor -G263- nears the specified value, the activation is canceled and the A/C compressor output is reduced as a result.*
- *Under certain operating conditions, moisture in the refrigerant circuit can lead to ice build-up on the A/C Compressor Regulator Valve -N280- and on the expansion valve. This ice build-up interferes with A/C compressor regulation. The evaporator is cooled too intensely and freezes. The freeze-up of the evaporator can be the cause for various customer complaints. Refer to ⇒ M4.7.7 alfunction for Ice Build-Up on Evaporator", page 56 .*
- *If no or very little current is displayed in the measured values for the A/C Compressor Regulator Valve -N280- activation, check the activation of the A/C Compressor Regulator Valve -N280-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).*

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– Press the Recirculation button (in the regulator -1-) on the Front A/C Display Control Head 4 -E777-.

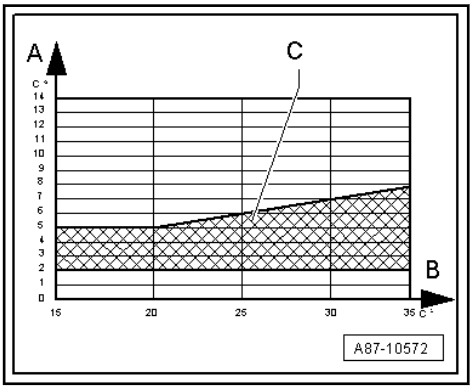


- The indicator lamp for "recirculating air mode" in the Recirculation button (in the regulator -3-) illuminates.
- Defrost mode off: the indicator lamp in the Defrost Button -E782- -4- does not come on.

– Set the engine speed to 2000 rpm (start of time measurement).

– "Read the measured values" using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

– Compare the displayed measured value for the Evaporator Vent Temperature Sensor -G263- with the values in the diagram.



A - Air temperature measured by the Evaporator Vent Temperature Sensor -G263-

B - Ambient Temperature

C - Permissible Tolerance Range

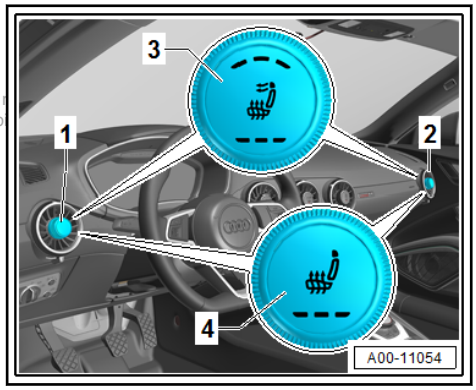
- Depending on the ambient temperature, the measured air temperature must be within the specified tolerance range after 5 minutes.

If the requested values are not reached:

– Compare the measured values for the Left Vent Temperature Sensor -G150- (or the Right Vent Temperature Sensor -G151-) with the displayed measured value for the Evaporator Vent Temperature Sensor -G263-. Use the⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

– Measure the temperature of the air coming out of the right instrument panel vent -2- with a thermometer (left vent on a RHD vehicle).

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Note

- *The designation and the component location of the vent temperature sensors (Left Vent Temperature Sensor -G150- and Right Vent Temperature Sensor -G151-) is different. The Left Vent Temperature Sensor -G150- is installed in the air duct to the left instrument panel vent -1- on LHD vehicles. The Right Vent Temperature Sensor -G151- is installed in the air duct to the right instrument panel vent -2- on RHD vehicles.*
- *The temperature of the air coming out of the left -1- and right -2- instrument panel vents can also be measured with a thermometer.*

If the measured values of the Evaporator Vent Temperature Sensor -G263- and Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-) only slightly deviate from each other:

– Perform the procedure for identifying malfunctions if there is a deviation from the specified value. Refer to ⇒ M4.7.5 alfunction if Deviation from Specified Value", page 54 .

If the measured value for the Evaporator Vent Temperature Sensor -G263- is greater than the measured value for the Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-):

– Make sure the Evaporator Vent Temperature Sensor -G263- is installed correctly (refer to ⇒ E5.7 vaporator Vent Temperature SensorG263, Removing and Installing", page 237) and perform an electrical test for this sensor. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

Note

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The A/C system function can be recognized, for example, by the refrigerant pipe on the low pressure side (thick line) cooling off.

If the measured value for the Evaporator Vent Temperature Sensor -G263- and the A/C system cooling output is OK and there are no complaints, the cooling output test ends.

If the measured value for the Evaporator Vent Temperature Sensor -G263- (and the A/C system cooling output) is not OK:

– Perform the procedure for identifying malfunctions if there is a deviation from the specified value (requested cooling output is not reached). Refer to ⇒ M4.7.5 alfunction if Deviation from Specified Value", page 54 .

If the measured value for the Evaporator Vent Temperature Sensor -G263- (and the A/C cooling output) is OK and there is a complaint regarding excessive or different vent temperatures for the heating and A/C system:

– Check the activation of the temperature control doors in the heater and A/C unit. Refer to ⇒ D5.12 istribution Housing, Removing and Installing", page 246 and use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

4.7.5 Determining Malfunction if Deviation from Specified Value

The requested cooling output is not reached. Refer to ⇒ O4.7.3 utput, Checking, Vehicles with Manual A/C System", page 43 or ⇒ O4.7.4 utput, Checking, Vehicles with Automatic Climate Control System", page 48 .

Note

This repair manual only outlines the testing procedure. Perform the detailed test for this heating and A/C system function as described in Guided Fault Finding. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).

If a specified value is not reached, this may have various causes:

– Determine the cause using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

Possible causes for the deviation from specified value:

- Dirty radiator or A/C system condenser.
- Retrofitted components on or in the front end.
- Malfunction in the activation or function of the Radiator Fan -V7-/Radiator Fan 2 -V177-.
- Malfunction in the coolant circuit; the coolant gets too hot.
- Malfunction in the activation of the A/C Compressor Regulator Valve -N280- by the Climatronic Control Module -J255-.
- Requests for switching off the activation of the A/C Compressor Regulator Valve -N280- transmitted to the Climatronic Control Module -J255- by other control modules.
- Fault in the function of the A/C Compressor Regulator Valve -N280-.
- Malfunction in the refrigerant circuit or A/C compressor.

If a malfunction was detected in the refrigerant circuit by the “Guided Fault Finding”:

– The necessary work procedures may only be performed by qualified personnel. If this is not possible, bring the vehicle to a workshop that has the necessary tools and in which the work can be performed by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Legal Texts and Regulations. Bring the detected problems to the attention of the workshop.

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4.7.6 Determining Malfunction of Temperature Increase Downstream from Evaporator

The temperature increase in the A/C unit is too great. Refer to ⇒ O4.7.3 utput, Checking, Vehicles with Manual A/C System”, page 43 or ⇒ O4.7.4 utput, Checking, Vehicles with Automatic Climate Control System”, page 48 .

Note

This repair manual only outlines the testing procedure. Perform the detailed test for this heating function as described in Guided Fault Finding. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

If a specified value is not reached due to a temperature increase downstream of the evaporator, this may have various causes:

– Determine the cause using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

Possible causes for the deviation from specified value:

- Due to a fault in the activation, the temperature control doors in the heater and A/C unit do not reach the end stops correctly.
- One or several measured values for the temperature sensors are faulty.
- Warmed air flows past the temperature control doors set at the “cold” stop.

Note

This fault can be determined as follows: clamp off both coolant hoses from the engine to the heater and A/C unit heater core using, for example, the Hose Clamps - Up To 40mm -3093- and then repeat the cooling output test. If the measured values are then OK, this indicates a malfunction involving the temperature control doors.

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4.7.7 Localizing Malfunction for Ice Build-Up on Evaporator

- The A/C Compressor Regulator Valve -N280- is activated by the Climatronic Control Module -J255-, so that the temperature of air downstream from the evaporator reaches the specified value (approximately 2 to 6 °C (35.6 to 42.8 °F)).
- Depending on the measured temperature, engine speed and electrical system voltage, a value greater than 0.55 A (75 %) is displayed in “Read measured values” of the Climatronic Control Module -J255- for the activation of the A/C Compressor Regulator Valve -N280- after starting the vehicle. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-). As soon as the temperature measured by the Evaporator Vent Temperature Sensor -G263- approaches the specified value, activation is canceled and the compressor output is thus reduced.
- Under extreme ambient conditions, ice build-up can occur on the evaporator when certain unfavorable A/C system settings are selected (for example, airflow direction is set to the instrument panel vents and these vents are closed; maximum cooling output selected with low fresh air blower speed). At this setting, air is no longer flowing through the evaporator and is making the temperature at the Evaporator Vent Temperature Sensor -G263- higher than the actual evaporator temperature. It can be assumed for A/C system regulation that the measured value of the Evaporator Vent Temperature Sensor -G263- corresponds to the actual evaporator temperature and continues to activate the A/C Compressor Regulator Valve -N280- and the evaporator cools too much.
- Under certain operating conditions, moisture in the refrigerant circuit can lead to ice build-up on the A/C compressor regulator valve and on the expansion valve. This ice build-up interferes with A/C compressor regulation. The evaporator is cooled too intensely and freezes. The freeze-up of the evaporator may be the cause for the following customer complaints. Refer to ⇒ page 56 .

Possible Customer Complaints:

- After a long drive, the A/C system repeatedly or sporadically fails (no cooling or heating output). After switching off the vehicle or A/C system and after a short wait time, the A/C function is OK again.

- ♦ After a long drive, the vehicle windows fog up from inside. The windows are also not cleared by pressing the “Defrost” button on vehicles with an automatic climate control system, for example. After switching off the vehicle and after a short wait time, the A/C function is OK again.

Corrective Measure:

– Check the measured value for the Evaporator Vent Temperature Sensor -G263- using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-).

If the measured value of the sensor is too high under the operating conditions reported by the customer, even though the heating and A/C system is operating without problems at greater than, for example, 10 °C (50 °F), depending on ambient temperature:

– Check the Evaporator Vent Temperature Sensor -G263-. The evaporator can ice up due to an incorrect measured value.

If the measured value of the sensor is too low under the operating conditions reported by the customer (at an ambient temperature above 0 °C (32 °F), colder than 0 °C (32 °F) for a considerable amount of time):

– The necessary work procedures may only be performed by qualified personnel. If this is not possible, bring the vehicle to a workshop that has the necessary tools and in which the work can be performed by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Legal Texts and Regulations. Bring the detected problems to the attention of the workshop.

– With the engine running, check the refrigerant line with the inner heat exchanger (from the evaporator) to the A/C compressor (thick pipe, low pressure side).

If this line is thickly iced-up when the complaint occurs (a thin layer of ice is permitted), this also indicates that the temperature in the evaporator is too low. It is possible that the A/C compressor regulation is not OK.

– The necessary work procedures may only be performed by qualified personnel. If this is not possible, bring the vehicle to a workshop that has the necessary tools and in which the work can be performed by qualified personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Legal Texts and Regulations. Bring the detected problems to the attention of the workshop.

4.8 Working on Refrigerant Circuit

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No components of the heating and A/C system can be serviced.

- We recommend replacing faulty components with original parts. Evaporators must comply with applicable SAE Standards.

No welding or soldering processes must be performed on the vehicle if there is the danger of heating up the A/C system.

Reason:

Exposure to heat creates considerable pressure in the system, which could cause it to burst.

– Discharge the refrigerant circuit.

In order to prevent unnecessary moisture penetration immediately close all open components and wire connections when performing repair work at the A/C system.

Reason:

Moisture will penetrate into A/C system components if they are left open for a lengthy period. If this is the case, air conditioners cannot be refilled without having to replace parts of the system.

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- If it is necessary to empty the refrigerant circuit of the A/C systems, this process is described in the respective procedure. Furthermore, these work procedures may only be performed by trained personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (A/C System with Refrigerant R134a, Refrigerant Circuit, Working with A/C Service Station), ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station or ⇒ Refrigerant R744 General Information; Rep. Gr. 87; Working with A/C Service Station.

There is risk of destroying the refrigerant lines.

The refrigerant lines can be destroyed by ripping through the inner foil.

– Never bend the refrigerant lines to a radius smaller than r = 100 mm.

4.9 Vehicles with A/C System, Painting

When performing paint work repairs, object temperatures of 80 °C (176 °F) must not be exceeded in drying booths or their pre-heating areas.

Reason:

Exposure to heat creates considerable pressure in the system, which could cause it to burst.

4.10 Seals, Sealing Rings

- The sealing surfaces must be checked for burrs or damages before installing.
- Thoroughly clean the sealing surfaces before the assembly.
- The respective overview specifies if O-rings and seals must be replaced. If no overview is available, then these components must be replaced after removal.
- Make sure the O-rings are positioned correctly on the pipe or in the groove.

Unless otherwise specified:

- Coat the seals at the outer circumference with the respective medium (oil, coolant, refrigerant oil, etc.).

Shaft seals:

- Slightly coat the shaft seals in oil before installing at the outer diameter.
- The open side of the shaft seals faces toward the fluid to be sealed.
- Specified shaft seals (for example PTFE) must be installed dry. For this, always pay attention to the repair manual.

- For shaft seals in the transmission area the space in between the sealing lips must be filled halfway with sealing grease.

4.11 Actuator Information

⇒ I4.11.1 nformation", page 59

⇒ C4.11.2 able for Activating Actuators", page 61

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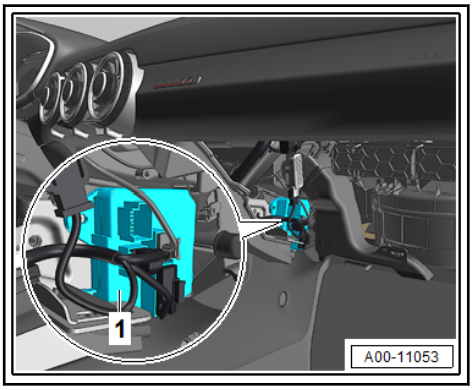
4.11.1 Actuator Information

Caution

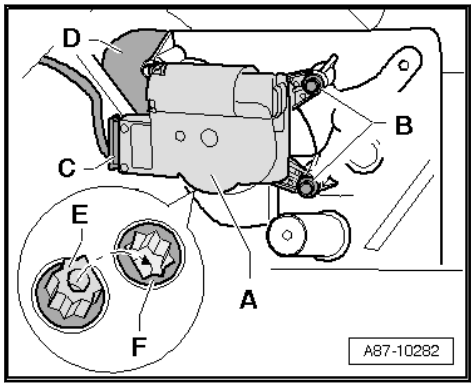
Heating and A/C system malfunctions.

- *Malfunctions in the heating and A/C system can occur if the actuators and/or the corresponding connectors are switched.*
- *Actuator connectors are identical in construction. If these are incorrectly connected, the corresponding doors can no longer be adapted and/or activated properly.*
- *The actuator mount may not have a stop. It turns continuously if the actuator is activated. Therefore, it should not be activated with the actuator removed (or only when it is necessary for installation).*

- There are various connectors on the heater and A/C unit that are identical in construction. Mark the connectors before disconnecting them (risk of interchanging them).
- Various actuators are installed on the heater and A/C unit and on the air ducts to the vents. They have different electrical values and vary in part number. Refer to the ⇒ Electronic Parts Catalog (ETKA). Mark the actuators before removing (risk of interchanging them).
- Perform a basic setting for the heating and A/C system after installing an actuator. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
- Using the "output diagnostic test mode" and "basic setting" functions, the activation of the electrical components for the heating and A/C system can be checked (for example, to check for interchanging). Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).
- After installing a new actuator, perform the basic setting and check the activation and function of the actuator by operating the heating and A/C system control heads. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255- -1-).



If the mount -F- of an actuator -A- (or an installed connecting element) is located unfavorably so that the actuator cannot be installed, proceed as follows:



– If it is possible to switch on the ignition, connect the affected actuator -A- to the vehicle wiring harness -C-. Then switch on the ignition and select a setting using the heating and A/C system controls in which the actuator is brought to the desired position (such as the center position). Wait until the actuator has reached the desired position and then switch the ignition off.

– If it is not possible to switch on the ignition, the contacts “5” and “6” of the removed actuator can be connected, for example, using an adapter cable (refer to ⇒ C4.11.2 able for Activating Actuators”, page 61) (or a cable from the Connector Test Set -V.A.G 1594D-) via a 5A fuse to a 12 V battery. Then let the actuator turn until the mount -F- for the actuator -A- (or an installed connecting element) is in a position where it can be installed without pretension or joined in its designated position. The actuator turning direction can be reversed by switching the positive and negative.

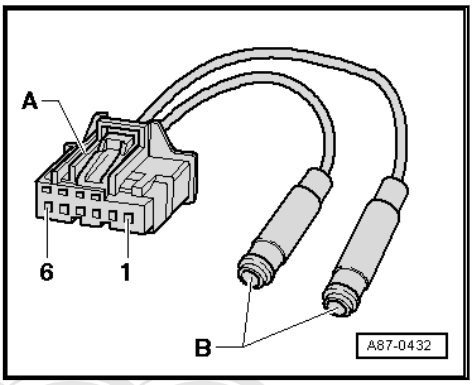
Note

The adjusting unit pin -E- and the mount -F- of an actuator -A- may only be joined together, for example, in the position in which force is not needed. If the pin -E- can only be inserted with pretension, check the actuator shaft. It can be turned 180°, for example.

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4.11.2 Adapter Cable for Activating Actuators

Procedure



– Connect each of the contacts “1” and “6” on the connector -A-(Flat Terminal Housing with Auxiliary Terminal Retainer -6Q0 972 706-) to a line with a cross section of 0.25 mm^2. Refer to the ⇒ Electronic Parts Catalog (ETKA).

– Connect a commercially available banana connector -B- to each end of the wire.

4.12 Impact Wrench, Using

Removing bolts and nuts is generally allowed using an impact wrench. Procedures within an open high-voltage battery is excluded from this. Generally no impact wrench is permitted for these procedures.

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If the following requirements are met, using an impact wrench to screw in bolts and nuts is permitted during repair procedures. Electric and compressed air impact wrenches are generally intended here.

Requirements:

- Bolts with locking fluid or self-locking nuts must only be screwed in at low speeds.
- Use a suitable impact wrench with an adjustable speed and torque range.
- Use suitable screwdriver bits near delicate surfaces, for example, use plastic-coated bits on aluminum rims.
- Note the Natural Gas Fuel Systems - General Information repair manual when working in a natural gas fuel system area.

Application:

- Position the bolts or nuts by hand.
- Only screw in the bolts or nuts with an impact wrench until the head of the bolt or nut contacts the surface and then continue to turn using a torque wrench.
- Clean the threaded pins before removing the bolt or nut.

4.13 Identification Plates

When replacing vehicle components, the existing identification plates on the old parts that indicate the replacement part num-

ber (refer to ⇒ Electronic Parts Catalog (ETKA)), must be applied to the new part according to the specifications.

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5 Technical Data

⇒ C5.1 apacities", page 63

⇒ R5.2 efrigerant Oils and Refrigerant Oil Capacities", page 65

⇒ D5.3 istribution", page 70

5.1 Refrigerant Capacities

⇒ R5.1.1 134a Capacities", page 63

⇒ R5.1.2 1234yf Capacities", page 63

5.1.1 Refrigerant R134a Capacities

Refer to ⇒ Rep. Gr. MS; Fluid Capacity Tables (USA and Canada).

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Refrigerant R134a and refrigerant oil capacities. Refer to ⇒ Refrigerant R134a, Servicing; Rep. Gr. 87; Refrigerant R134a, Refrigerant Oil and Approved Refrigerant Oil Capacities (Refrigerant R134a, Servicing; Refrigerant R134a, Refrigerant Oil and Approved Refrigerant Oil Capacities).

– Discharge, evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a, Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a, Servicing; Refrigerant Circuit, Using Service Station).
– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 .

Note

- *Depending on the production date and the engine, the compressor type and the condenser version may vary. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The refrigerant and refrigerant oil capacities depend on the A/C compressor type and condenser version. Refer to ⇒ Refrigerant R134a, Servicing; Rep. Gr. 87; Refrigerant R134a, Refrigerant Oil and Approved Refrigerant Oil Capacities (Refrigerant R134a, Servicing; Refrigerant R134a, Refrigerant Oil and Approved Refrigerant Oil Capacities).*
- *Always fill the refrigerant circuit up to the upper tolerance limit (some refrigerant remains in filler hoses).*
- *Refer to ⇒ L2.1 abels", page 3 and ⇒ Refrigerant R134a, Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a, Servicing; Refrigerant Circuit, Using Service Station) for additional information.*

5.1.2 Refrigerant R1234yf Capacities

Refer to ⇒ Rep. Gr. MS; Fluid Capacity Tables (USA and Canada).

Note

- *When charging the high-pressure side of refrigerant circuits, always use maximum amount of refrigerant (some of the refrigerant remains in the charging hoses).*
- *The specified capacities for refrigerant R1234yf apply if no other different specifications are given, also for the "S" and "RS" versions of this vehicle model.*
- *Make sure the A/C Service Station is on the same level as the vehicle (maximum difference: 50 cm) when charging the refrigerant circuit. If a difference in height is too large, a difference between the amount of refrigerant displayed on the service station and the actual amount filled in the circuit may result (depending on the version of the A/C Service Station). The filling precision of the A/C service station may change.*
- *The capacities for the refrigerant R1234yf and the corresponding refrigerant oil are no longer in the main repair manual, but rather in this repair manual. Refer to ⇒ O5.2.3 il Capacities in Refrigerant Circuits for Refrigerant R1234yf", page 68 and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Technical Data.*
- *For additional information on evacuating and charging the refrigerant circuit, refer to ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.*

– Discharge, evacuate and charge the refrigerant circuit. Refer to ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 .

Refrigerant R1234yf Capacity

Vehicle type	Production period	Capacity in grams	Differing features of this refrigerant circuit
Audi TT	From 06/2016	460^{+} / - 15	• None
Audi TT RS • With 5-cylinder engine	From 07/2016	520^{+} / - 15	• A/C Compressor and condenser of another version installed. Refer to ⇒ Electronic Parts Catalog (ETKA).

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5.2 Approved Refrigerant Oils and Refrigerant Oil Capacities

⇒ R5.2.1 efrigerant Oils and Refrigerant Oil Capacities for Refrigerant R134a", page 65

⇒ R5.2.2 efrigerant Oils for Refrigerant R1234yf", page 66

⇒ O5.2.3 il Capacities in Refrigerant Circuits for Refrigerant R1234yf", page 68

5.2.1 Approved Refrigerant Oils and Refrigerant Oil Capacities for Refrigerant R134a

Refer to ⇒ Rep. Gr. MS; Fluid Capacity Tables (USA and Canada).

The special refrigerant oil that is only used for refrigerant circuits with refrigerant R134a is not always commercially available. Refer to the ⇒ Electronic Parts Catalog (ETKA).

Refrigerant R134a and refrigerant oil. Refer to ⇒ Refrigerant R134a, Servicing; Rep. Gr. 87; Refrigerant R134a Capacities, Refrigerant Oil and Approved Refrigerant Oil Capacities.

– Discharging, evacuating and filling the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit.
– Operate the A/C system after filling the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 and ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System, General Information (Refrigerant R134a, Servicing; A/C System, General Information). After recharging, before activating the A/C system.

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Malfunctions due to filling the A/C system with the wrong refrigerant oil.

- *Only fill the refrigerant circuit with approved refrigerant oils. Refer to the ⇒ Electronic Parts Catalog (ETKA). The correct refrigerant oil depends on the manufacturer and the type of A/C compressor installed. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant R134a Capacities, Refrigerant Oil and Approved Refrigerant Oil.*

Malfunctions due to improper filling of the A/C system with refrigerant oil.

- *Too much refrigerant oil in the refrigerant circuit increases the pressures and reduces the cooling output of the system.*
- *Too little refrigerant oil in the refrigerant circuit can lead to A/C compressor failure due to lubrication problems.*

Danger of corrosion in the refrigerant circuit.

- *Refrigerant oil absorbs moisture. Do not use refrigerant oil from containers that have been left open for a long period of time. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information.*

Important information:

Refrigerant oil attracts moisture. Close any opened containers immediately after use to prevent moisture from entering.

Note

- *The specification about the usability of the refrigerant oil is given on the bottle the refrigerant oil is delivered in.*
- *This time specification does not need to be observed when the delivered bottle is tightly sealed.*
- *Refrigerant oil from a tightly sealed bottle can also be used after the time specified on the bottle.*

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5.2.2 Approved Refrigerant Oils for Refrigerant R1234yf

Note

- *As PAG (polyalkylene glycol) oil is highly hygroscopic (attracts water), opened containers are to be immediately re-sealed so as to be air-tight.*
- *PAG oil from containers which have been open for a lengthy period is no longer usable.*

Caution

Malfunctions due to filling the A/C system with the wrong refrigerant oil.

- ***Only fill the refrigerant circuit with approved refrigerant oils. Refer to the ⇒ Electronic Parts Catalog (ETKA). The correct refrigerant oil depends on the manufacturer and the type of A/C compressor installed.***

Malfunctions due to improper filling of the A/C system with refrigerant oil.

- ***Too much refrigerant oil in the refrigerant circuit increases the pressures and reduces the cooling output of the system.***
- ***Too little refrigerant oil in the refrigerant circuit can lead to A/C compressor failure due to lubrication problems.***

Danger of corrosion in the refrigerant circuit.

- ***Refrigerant oil absorbs moisture. Do not use refrigerant oil from containers that have been open for a long period of time. Refer to ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Repair Information; Refrigerant and Refrigerant Oil.***

Important information:

Refrigerant oil attracts moisture. Close any opened containers immediately after use to prevent moisture from entering.

Note

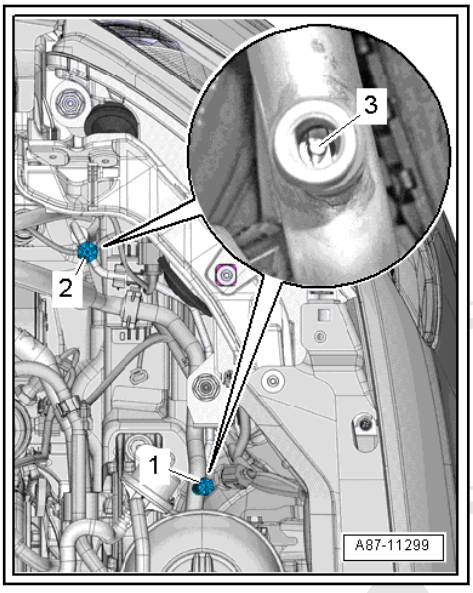
- *The specification about the usability of the refrigerant oil is given on the bottle the refrigerant oil is delivered in.*
- *This time specification does not need to be observed when the delivered bottle is tightly sealed.*
- *Refrigerant oil from a tightly sealed bottle can also be used after the time specified on the bottle.*

- The refrigerant oils specified for refrigerant R134a are not suitable for refrigerant R1234yf. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- The special refrigerant oil that is only used for refrigerant circuits with refrigerant R1234yf is not always commercially available. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- Refrigerant oils specifically designed for each compressor can therefore be obtained from the replacement parts program. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- If a faulty A/C compressor is replaced with an A/C compressor from another manufacturer, check if the same refrigerant oil is approved for the A/C compressor to be installed as the one that is already in the refrigerant circuit (from the removed A/C compressor). The refrigerant circuit must be cleaned (flushed), if the A/C compressor to be installed requires a different refrigerant oil than the refrigerant oil used for the removed A/C compressor. Refer to ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Components, Replacing.
- The use of other refrigerant oils could cause system failure, as they do not always mix and thus circulate with refrigerant R1234yf (for compressor lubrication).
- There are different refrigerant oils used for the “Denso”-, “Delphi/Mahle”-, “Visteon” and “Sanden” A/C compressors. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- The refrigerant oil (part number G 055 535 M2, external label ND 12)) to be used on refrigerant circuits with a “Denso” A/C compressor is the same for mechanically and electrically-driven A/C compressors. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- The refrigerant oil (part number G 052 535 M2, external label SP A2) is to be used for mechanically and electrically-driven “Sanden”, “Delphi/Mahle” or “Visteon” A/C compressors. Refer to the ⇒ Electronic Parts Catalog (ETKA).

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Note

- *Since different refrigerant oils are used depending on the A/C compressor manufacturer, a certain small amount (up to maximum 10%) of refrigerant oil may be released in the respective vehicle refrigerant circuit with a different specification as the respective A/C compressor installed. This is so that the A/C service station does not have to be cleaned after every procedure on different vehicles. Therefore for Audi, up to a maximum of 10% SP A2 refrigerant oil may be filled on a vehicle with a "Denso" A/C compressor (with ND 12 refrigerant oil), or up to a maximum of 10% ND 12 refrigerant oil may be filled on a vehicle with a "Sanden", "Delphi/Mahle" or "Visteon" A/C compressor (with SP A2 refrigerant oil). However, other refrigerant oils that are not specified here may not be filled (different properties due to different viscosity, other or missing additives, etc.).*
- *Instead of discharging via the A/C service station, the extracted refrigerant oil can either be filled when discharging the refrigerant circuit via an open connection before evacuating the refrigerant circuit, or at the removed valve -3- via a service connection -1- or -2- using a commercially available syringe. Refer to ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station. This is useful for example when a refrigerant oil is specified for a refrigerant circuit, that is normally only seldom used. Always fill with fresh refrigerant oil. Refer to the ⇒ Electronic Parts Catalog (ETKA). The allocation of the service connection -1- or -2- in the vehicle is different. Refer to ⇒ O2.1 verview - Refrigerant Circuit", page 101 .*



Refer to ⇒ O5.2.3 il Capacities in Refrigerant Circuits for Refrigerant R1234yf", page 68

5.2.3 Refrigerant Oil Capacities in Refrigerant Circuits for Refrigerant R1234yf

Refer to ⇒ Rep. Gr. MS; Fluid Capacity Tables (USA and Canada).

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Note

- *Depending on the time period of production and the engine, the compressor construction type may vary. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Depending on the A/C compressor type, different refrigerant oil capacities may be designated for the refrigerant circuit. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *There are different refrigerant oils used for the "Denso", "Delphi/Mahle", "Visteon" and "Sanden" A/C compressors. Refer to ⇒ R5.2.2 efrigerant Oils for Refrigerant R1234yf", page 66 and the ⇒ Electronic Parts Catalog (ETKA).*
- *Additional information about refrigerant oil. Refer to ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Repair Information; Refrigerant and Refrigerant Oil.*

- Refer to ⇒ R5.2.2 efrigerant Oils for Refrigerant R1234yf", page 66
- Overview and characteristics for the refrigerant circuit. Refer to ⇒ O2.1 verview - Refrigerant Circuit", page 101

Vehicle type	Production period	Total quantity of oil in refrigerant circuit in cm^3	Quantity of refrigerant oil in replacement compressor in cm^3	Differing features of this refrigerant circuit
Audi TT	From 06/2016	110 + / - 10	110 + / - 10	• "Denso" A/C compressor
		75+ / - 10	75+ / - 10	"Sanden" A/C compressor
		110+ / - 10	110 + / - 10	"Delphi/Mahle" A/C compressor
Audi TT RS • With 5-cylinder engine	From 07/2016	110 + / - 10	110 + / - 10	• "Denso" A/C compressor installed of another version installed. Refer to the ⇒ Electronic Parts Catalog (ETKA).

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Note

- *The replacement compressor contains the full quantity of oil intended for the refrigerant circuit. If the A/C compressor is replaced, the amount of oil in the A/C compressor must then be adjusted. Refer to ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Components, Replacing.*
- *At the start of production, mechanically-driven A/C compressors from different manufacturers are installed on all vehicles. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *These A/C compressors are available as replacement parts with different oil fill capacities, therefore note capacity on the A/C compressor and the exact part number. Refer to the ⇒ Electronic Parts Catalog (ETKA)*
- *The reason for the different oil capacities inside the A/C compressor is due to the design of the A/C compressor (with or without an oil separator on the high pressure connection) or to the design of the refrigerant circuit if the A/C compressors are have the identical design. Pay attention to the different capacities. Too much oil in the circuit leads to higher pressures and reduces cooling output of the system. Too little oil may lead to lubrication problems in the compressor.*
- *A data plate may be attached to the A/C compressor by the manufacturer, indicating the part number and refrigerant oil quantity.*

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5.3 Oil Distribution

- When the A/C system is being used, the refrigerant oil that was in the A/C compressor before switching on the A/C system for the first time is distributed throughout the entire refrigerant circuit.
- Depending on the previous operating condition of the A/C system before switching it off, the ambient temperatures, etc., the distribution of the refrigerant oil in the refrigerant circuit varies. A general statement about the refrigerant oil distribution in the refrigerant circuit is therefore not possible. Therefore, observe the information regarding the replacement of refrigerant circuit components. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit Components, Replacing or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Components, Replacing

80 – Heating, Ventilation

1 Component Location Overview - Heater

⇒ L1.1 ocation Overview - Components Outside of Vehicle Interior", page 71

⇒ L1.2 ocation Overview - Components in Front Vehicle Interior", page 73

⇒ 1.3 , page 74

⇒ D1.4 uct", page 78

⇒ C1.5 ontrol Head", page 79

⇒ C1.6 omponents for Control and Regulation", page 81

1.1 Component Location Overview - Components Outside of Vehicle Interior

All necessary information for servicing the heating can be found the A/C system. Refer to ⇒ L1.1 ocation Overview - Components Outside of Vehicle Interior", page 82 .

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Note

Only a heating and A/C system is offered for the Audi TT with the exception of certain markets. Heating without an A/C system is only offered for certain markets.

Vehicles without an A/C system vary from those with an A/C system in the following components outside of the vehicle interior:

1 - Condenser

- ❑ Not installed

2 - Dryer Cartridge

- ❑ Not installed

3 - A/C Compressor Regulator Valve -N280-

- ❑ Not installed

4 - A/C Compressor

- ❑ Not installed along with the motor with another belt drive. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

5 - High Pressure Side Service Connection

- ❑ Not installed

6 - Refrigerant Circuit Pressure Sensor -G805-

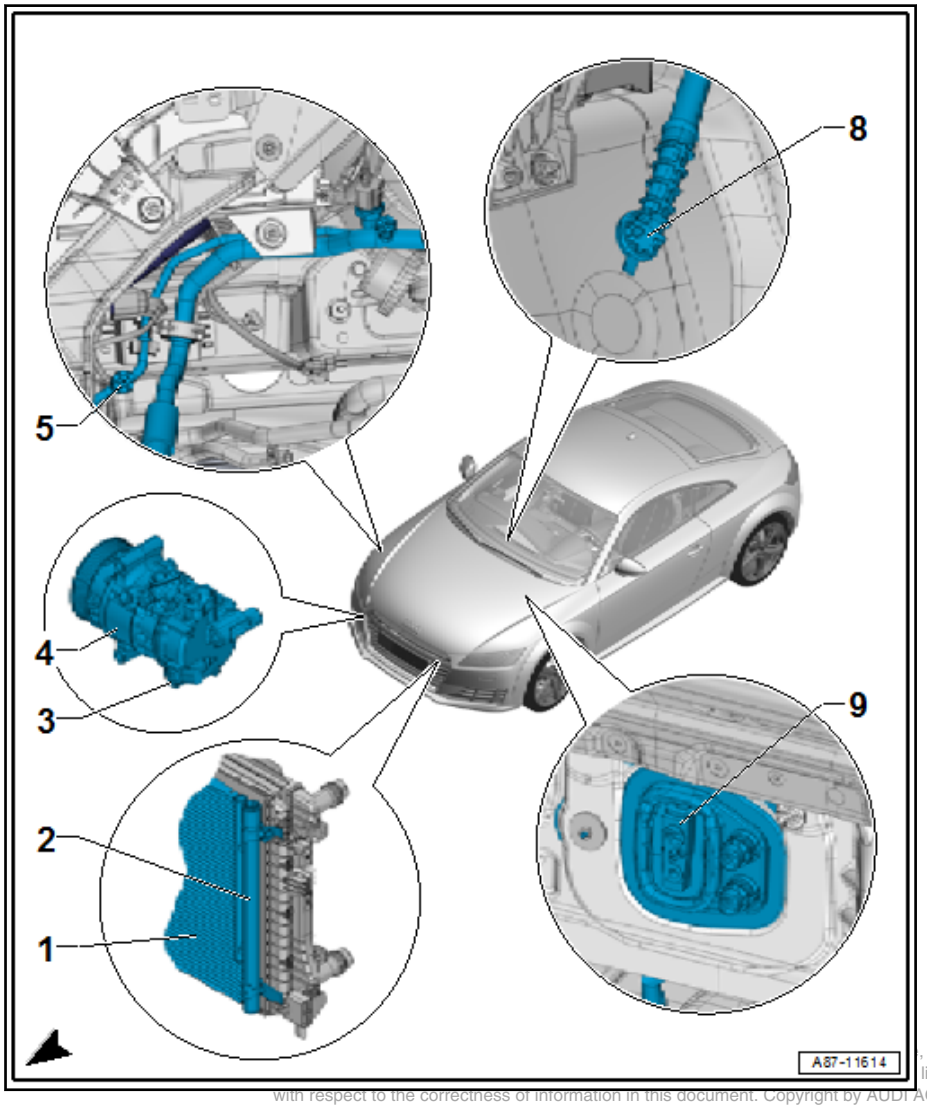
- ❑ Not installed

7 - Low Pressure Side Service Connection

- ❑ Not installed

8 - Condensation Water Drain

- ❑ Check using the Vehicle Diagnostic Tester. Refer to ⇒ W5.20 ater Drain Hose, Checking", page 273 .
- ❑ Removing and Installing. Refer to ⇒ W5.21 ater Drain Hose, Removing and Installing", page 278 .



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Note

- ♦ *The condensation water drain has no function due to the missing A/C system. If the condensation water drain is not installed correctly, moisture can get into the vehicle interior, or noises can occur when operating the heater.*
- ♦ *Depending on the vehicle version, a condensation water drain may not be installed. In this case, the openings in the underbody and the connection on the heater are sealed off with a plug. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

9 - Expansion Valve

- ❑ Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .
- ❑ There are no refrigerant lines installed. The connections on the expansion valve for the refrigerant lines are sealed with a closure cap. Refer to the ⇒ Electronic Parts Catalog (ETKA).

Note

- *If the connections for the refrigerant lines on the expansion valve are not sealed, there may be noises coming from the heater when operating the vehicle.*
- *Depending on the heater version, there may be no expansion valve installed. In this case, there is a foam piece installed in place of the expansion valve. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

1.2 Component Location Overview - Components in Front Vehicle Interior

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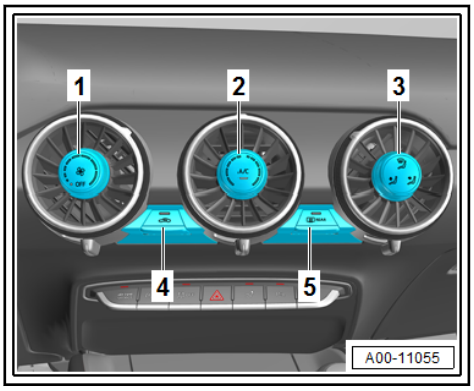
All necessary information for servicing the heating can be found the A/C system. Refer to ⇒ L1.2 ocation Overview - Components in Front Vehicle Interior", page 89 .

Note

Only a heating and A/C system is offered for the Audi TT with the exception of certain markets. Heating without an A/C system is only offered for certain markets.

Vehicles without an A/C system vary from those with a manual climate control system inside the vehicle interior in the following points. Refer to ⇒ L1.2 ocation Overview - Components in Front Vehicle Interior", page 89 .

- There may be no condensation water drain installed. Refer to ⇒ L1.1 ocation Overview - Components Outside of Vehicle Interior", page 71 .
- A Front A/C Display Control Head 3 -E776- -2- without an A/C button is installed. Refer to the ⇒ Electronic Parts Catalog (ETKA).



Note

The designations on the display control heads -1 and 3- should actually read “Heating”. However, since heating without an A/C system is only offered in a few markets, the designation “A/C system” was kept for the heating.

1.3 Heater

⇒ -1.3.1 Heater”, page 74

⇒ C1.3.2 limatronic Control ModuleJ255, Removing and Installing”, page 75

⇒ F1.3.3 resh Air BlowerV2, Removing and Installing”, page 75

⇒ F1.3.4 resh Air Blower Control ModuleJ126, Removing and Installing”, page 76

⇒ A1.3.5 uxiliary Heater Heating ElementZ35, Removing and Installing”, page 76

⇒ T1.3.6 emperature Control Door MotorV68 with Temperature Control Door Motor Position SensorG92, Removing and Installing”, page 76

⇒ R1.3.7 ecirculation Door MotorV113, Removing and Installing”, page 76

⇒ A1.3.8 ir Distribution Door MotorV428 with Air Distribution Door Motor Position SensorG645, Removing and Installing”, page 77

⇒ a1.3.9 nd Pollen Filter, Removing and Installing”, page 77

⇒ C1.3.10 ore, Removing and Installing”, page 77

⇒ R1.3.11 emoving and Installing”, page 77

⇒ D1.3.12 isassembling and Assembling”, page 78

1.3.1 Overview - Heater

Note

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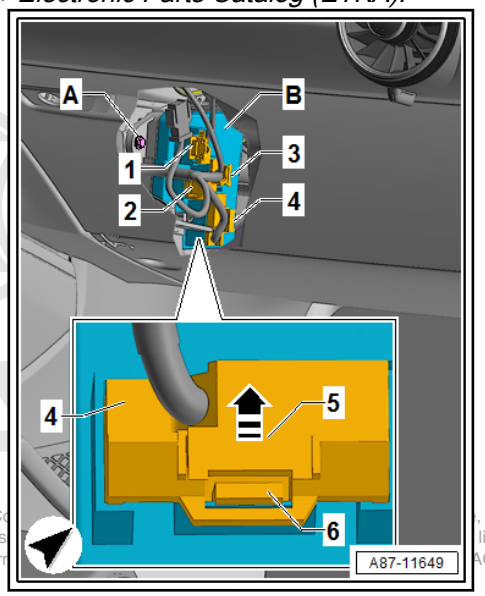
- *There are different versions and manufacturers of the heater. Individual components of the various heater and A/C units are similar but not the same. Interchanging components from different manufacturers is therefore not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The heater is very similar in construction to the heater and A/C unit for vehicles with a manual climate control system. Refer to ⇒ H5 eater and A/C Unit”, page 209 and ⇒ Electronic Parts Catalog (ETKA).*
- *Certain components (the expansion valve, the condensation water drain and the evaporator) are not required on a heating system without an A/C system.*
- *Depending on the version, a honeycomb may also be installed instead of the evaporator. Instead of an expansion valve, a foam piece may be installed in the heater to seal off the opening in the plenum chamber rear panel. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

1.3.2 Climatronic Control Module -J255-, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ C7.2.1 limatronic Control ModuleJ255, Removing and Installing", page 332 .

Note

There are different versions of the Climatronic Control Module -J255- -B- and various display control heads for vehicles without an A/C system, with a manual or an automatic climate control system. Refer to ⇒ L7.1 ocation Overview - Display Control Head", page 311 . Make sure the various display control heads (Front A/C Display Control Head 2 -E775- through Front A/C Display Control Head 4 -E777-) are correctly allocated to each other and to the Climatronic Control Module -J255- -B-. Interchanging components for vehicles without an A/C system, with a manual or with an automatic climate control system is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).



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The Climatronic Control Module -J255- -B- is installed on the left of the instrument panel crossmember on RHD vehicles.

Note

To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

1.3.3 Fresh Air Blower -V2-, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ F5.14 resh Air BlowerV2, Removing and Installing", page 250 .

Note

To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Trouble-shooting & Component locations.

1.3.4 Fresh Air Blower Control Module - J126-, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ F5.15 resh Air Blower Control ModuleJ126, Removing and Installing", page 252 .

Note

To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Trouble-shooting & Component locations.

1.3.5 Auxiliary Heater Heating Element - Z35-, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ A5.17 uxiliary Heater Heating ElementZ35, Removing and Installing", page 254 .

Note

To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Trouble-shooting & Component locations.

1.3.6 Temperature Control Door Motor -V68- with Temperature Control Door Motor Position Sensor -G92-, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ T4.1 emperature Control Door MotorV68 with Temperature Control Door Motor Position SensorG92, Removing and Installing", page 180 .

Note

To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Trouble-shooting & Component locations.

1.3.7 Recirculation Door Motor -V113-, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ R4.3 ecirculation Door MotorV113, Removing and Installing", page 185 .

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Note

To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Trouble-shooting & Component locations.

1.3.8 Air Distribution Door Motor -V428- with Air Distribution Door Motor Position Sensor -G645-, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ A4.8 ir Distribution Door MotorV428 with Air Distribution Door Motor Position SensorG645, Removing and Installing", page 195 .

Note

To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Trouble-shooting & Component locations.

1.3.9 Dust and Pollen Filter, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247 .

1.3.10 Heater Core, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

1.3.11 Heater, Removing and Installing

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Note

- *The heater construction is largely the same as the heater and A/C unit construction. The refrigerant lines to the expansion valve are not present. The open connections on the expansion valve are sealed off with a closure cap. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Depending on the heater version, there may be no expansion valve installed. In this case, there is a foam piece installed in place of the expansion valve. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The condensation water drain does not have a function due to the missing A/C system. Even though the condensation water drain does not have a function, it still must be installed properly. If it is not installed correctly, moisture can get into the vehicle interior or there may be noises when operating the heater.*
- *Depending on the vehicle version, a condensation water drain may not be installed. In this case, the openings in the underbody and the connection on the heater are sealed off with a plug. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

The removal and installation is largely identical to the AC unit. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .

1.3.12 Heater, Disassembling and Assembling

The disassembly and assembly procedures for the heater are identical to those for the heater and A/C unit in a manual climate control system. Refer to ⇒ a5.11 nd A/C Unit, Disassembling and Assembling", page 244 .

Note

- *The heater construction is largely the same as the construction of the heater and A/C unit on a manual climate control system. The installed evaporator only has the function of a placeholder for the heater. Depending on the heater version, there may be no evaporator installed. In this case, there is a honeycomb installed. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Depending on the heater version, there is either a foam piece installed instead of an expansion valve, or an expansion valve is installed, on which the open connections are sealed off with a closure cap. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The condensation water drain does not have a function due to the missing A/C system. Even though the condensation water drain does not have a function, it still must be installed properly. If it is not installed correctly, moisture can get into the vehicle interior or there may be noises when operating the heater.*
- *Depending on the vehicle version, there may be no condensation water drain installed. In this case, the connection on the heater is sealed off with a plug. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

1.4 Air Duct

⇒ -1.4.1 Air Routing and Air Distribution in Vehicle Interior", page 78

⇒ V1.4.2 ents, Removing and Installing", page 78

⇒ A1.4.3 ir Intake, Removing and Installing", page 79

⇒ I1.4.4 nterior Forced Air Extraction, Checking", page 79

⇒ I1.4.5 nterior Forced Air Extraction, Removing and Installing", page 79

⇒ C1.4.6 hamber Water Drain, Checking", page 79

1.4.1 Overview - Air Routing and Air Distribution in Vehicle Interior

The overview of the air routing and air distribution in the vehicle interior is identical to a vehicle with a manual climate control system. Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior", page 282 .

1.4.2 Front Vents, Removing and Installing

The removal and installation is identical to vehicles with an A/C system. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing",

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page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel for removing and installing.

1.4.3 Fresh Air Intake, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ A6.6 ir Intake, Removing and Installing", page 300 .

1.4.4 Vehicle Interior Forced Air Extraction, Checking

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ I6.7 nterior Forced Air Extraction, Checking", page 301 .

1.4.5 Vehicle Interior Forced Air Extraction, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ I6.8 nterior Forced Air Extraction, Removing and Installing", page 306 .

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1.4.6 Plenum Chamber Water Drain, Checking

The test is identical to a vehicle with an A/C system. Refer to ⇒ C6.9 hamber Water Drain, Checking", page 309 .

1.5 Display Control Head

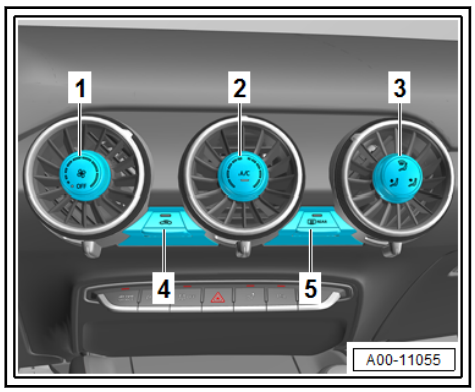
⇒ L1.5.1 ocation Overview - Display Control Head", page 79

⇒ C1.5.2 ontrol Heads, Removing and Installing", page 80

1.5.1 Component Location Overview - Display Control Head

The display control heads on vehicles without an A/C system vary from vehicles with a manual climate control system in the following points. Refer to ⇒ L1.2 ocation Overview - Components in Front Vehicle Interior", page 89 .

- A Front A/C Display Control Head 3 -E776- -2- is installed without an A/C button. Refer to the ⇒ Electronic Parts Catalog (ETKA).



Note

The designations on the display control heads -1- and -3- should actually read “Heating”. However, since heating without an A/C system is only offered in a few markets, the designation “A/C system” was kept for the heating.

For the function and description of the various heater display control heads, refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System”, page 311 .

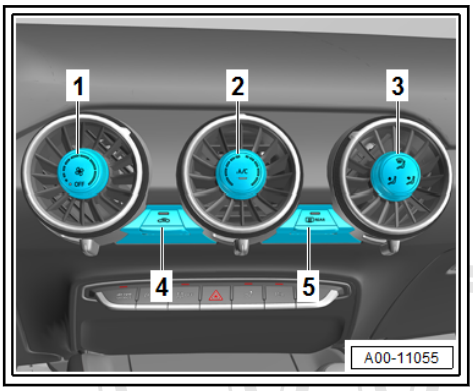
1.5.2 Display Control Heads, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ D7.2 isplay Control Heads, Removing and Installing”, page 331 .

Note

To check, use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function and refer to ⇒ Wiring diagrams, Trouble-shooting & Component locations.

- A Front A/C Display Control Head 3 -E776- -2- without an A/C button is installed on vehicles without an A/C system (with heating only). Refer to the ⇒ Electronic Parts Catalog (ETKA).



Note

The designations on the display control heads -1 and 3- should actually read “Heating”. However, since heating without an A/C system is only offered in a few markets, the designation “A/C system” was kept for the heating.

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1.6 Additional Components for Control and Regulation

⇒ O1.6.1 utside Air Temperature SensorG17, Removing and Installing", page 81

⇒ A1.6.2 fter-Run Coolant PumpV51, Removing and Installing", page 81

⇒ C1.6.3 oolant Shut-Off ValveN82, Removing and Installing", page 81

1.6.1 Outside Air Temperature Sensor - G17-, Removing and Installing

The removal and installation is identical to a vehicle with an A/C system. Refer to ⇒ O9.2 utside Air Temperature SensorG17, Removing and Installing", page 356 .

Note

To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Trouble-shooting & Component locations.

1.6.2 After-Run Coolant Pump -V51-, Removing and Installing

Note

Depending on the engine version, the After-Run Coolant Pump -V51- is installed in the coolant circuit. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses) and ⇒ Wiring diagrams, Trouble-shooting & Component locations.

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Removing and Installing. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Coolant Pump/Coolant Regulation (Overview - Electrical Coolant Pump).

1.6.3 Coolant Shut-Off Valve -N82-, Removing and Installing

Note

Depending on the engine version, the Coolant Shut-Off Valve -N82- is installed in the coolant circuit. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses) and ⇒ Wiring diagrams, Trouble-shooting & Component locations.

Removing and Installing. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses).

87 – Air Conditioning

1 Component Location Overview - A/C System

⇒ L1.1 ocation Overview - Components Outside of Vehicle Interior", page 82

⇒ L1.2 ocation Overview - Components in Front Vehicle Interior", page 89

1.1 Component Location Overview - Components Outside of Vehicle Interior

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After-Run Coolant Pump, Coolant Shut-Off Valve, Air Quality Sensor, Rear Window Defogger. Refer to ⇒ page 82 .

A/C Compressor, Condenser, Service Connections, Expansion Valve, Condensation Water Drain. Refer to ⇒ page 85 .

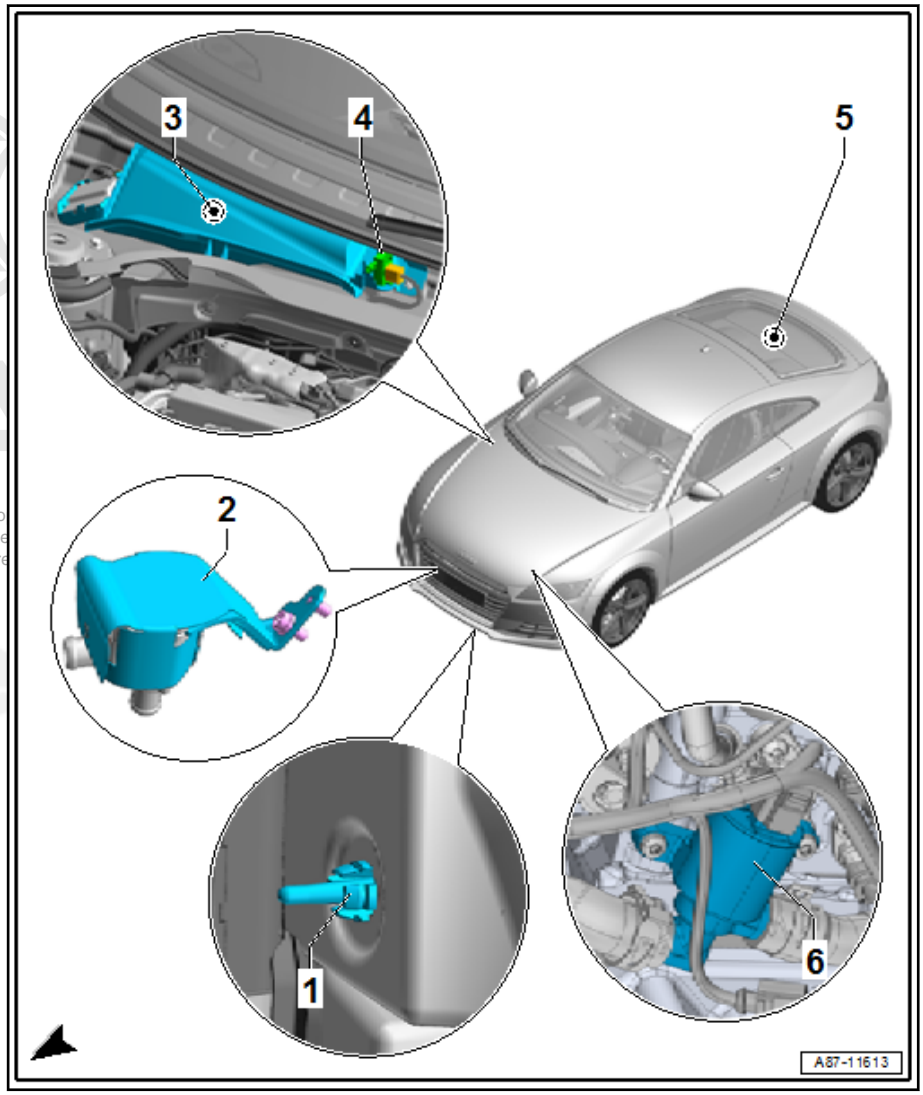
Plenum Chamber Water Drain, Vehicle Interior Forced Air Extraction. Refer to ⇒ page 88 .

After-Run Coolant Pump, Coolant Shut-Off Valve, Air Quality Sensor, Rear Window Defogger

1 - Outside Air Temperature Sensor -G17-

- ❑ Check using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

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Note

The Vehicle Electrical System Control Module -J519- evaluates the measured value for the Outside Air Temperature Sensor -G17-.

- ❑ Removing and Installing. Refer to ⇒ O9.2 utside Air Temperature SensorG17, Removing and Installing”, page 356 .

2 - After-Run Coolant Pump -V51-

- ❑ Shown on a 2.0L TFSI engine with bracket
- ❑ Installed in the coolant circuit depending on the engine version. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses) and ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Activated by the engine control module at the request of the Climatronic Control Module -J255-
- ❑ Also serves as support for the engine coolant pump to improve the coolant flow rate through the heater core for the heater to increase the heating output at certain engine speeds.
- ❑ Removing and Installing. Refer to ⇒ Rep. Gr. 19; Coolant Pump/Thermostat (Overview - Electrical Coolant Pump).

3 - Fresh Air Intake

- ❑ Removing and Installing. Refer to ⇒ A6.6 ir Intake, Removing and Installing”, page 300 .

Note

Depending on the vehicle version, a dust filter may also be installed instead of an intake grille (introduction not yet finalized).

4 - Air Quality Sensor -G238- with Humidity Sensor in Fresh Air Intake Duct -G657-

- ❑ Only on vehicles with an automatic climate control system
- ❑ Check using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Removing and Installing. Refer to ⇒ A9.7 ir Quality SensorG238/Humidity Sensor In Fresh Air Intake DuctG657, Removing and Installing”, page 369 .

5 - Rear Window Defogger -Z1-

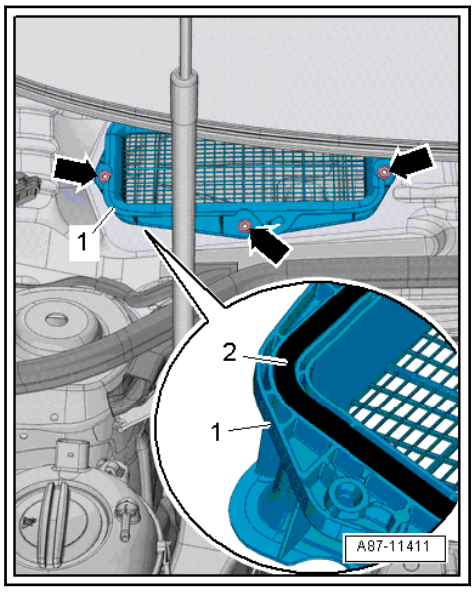
- ❑ Information on function and activation of the rear window defogger. Refer to ⇒ C7 ontrol Head”, page 311 and ⇒ Owner's Manual.
- ❑ Check the activation and function of the rear window defogger using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

6 - Coolant Shut-Off Valve -N82-

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- ❑ Shown on a 2.0L TFSI engine
- ❑ Installed in the coolant circuit depending on the engine version. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses) and ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Activated by the engine control module after approval from Climatronic Control Module -J255-
- ❑ Depending on the setting on the A/C system control head, it blocks the coolant flow through the heater core for the heater when the engine is cold at the request of the Climatronic Control Module -J255- to accelerate the engine warming up, for example, when the A/C system is switched off.
- ❑ Removing and Installing. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses).

Tightening specification for the nuts on the fresh air intake

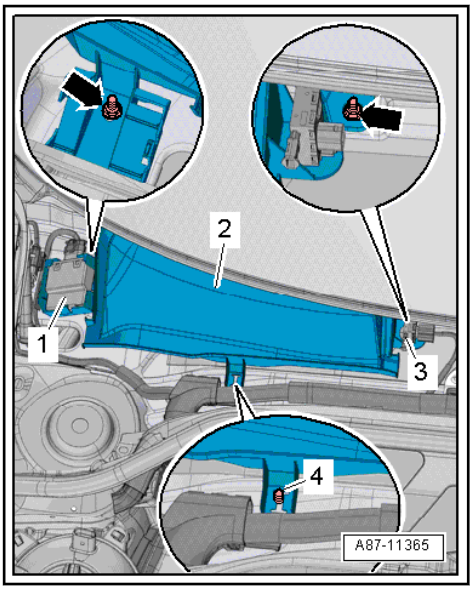


Note

First loosely install the left and right nut -arrows-, then install the center nut -arrow- and finally tighten all three nuts in the same sequence.

– Tighten the nuts -arrows- to 3 Nm.

Tightening specification for the nuts on the rain water drain channel



– Tighten the nuts -arrows- to 3 Nm.

A/C Compressor, Condenser, Service Connections, Expansion Valve, Condensation Water Drain

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1 - Condenser

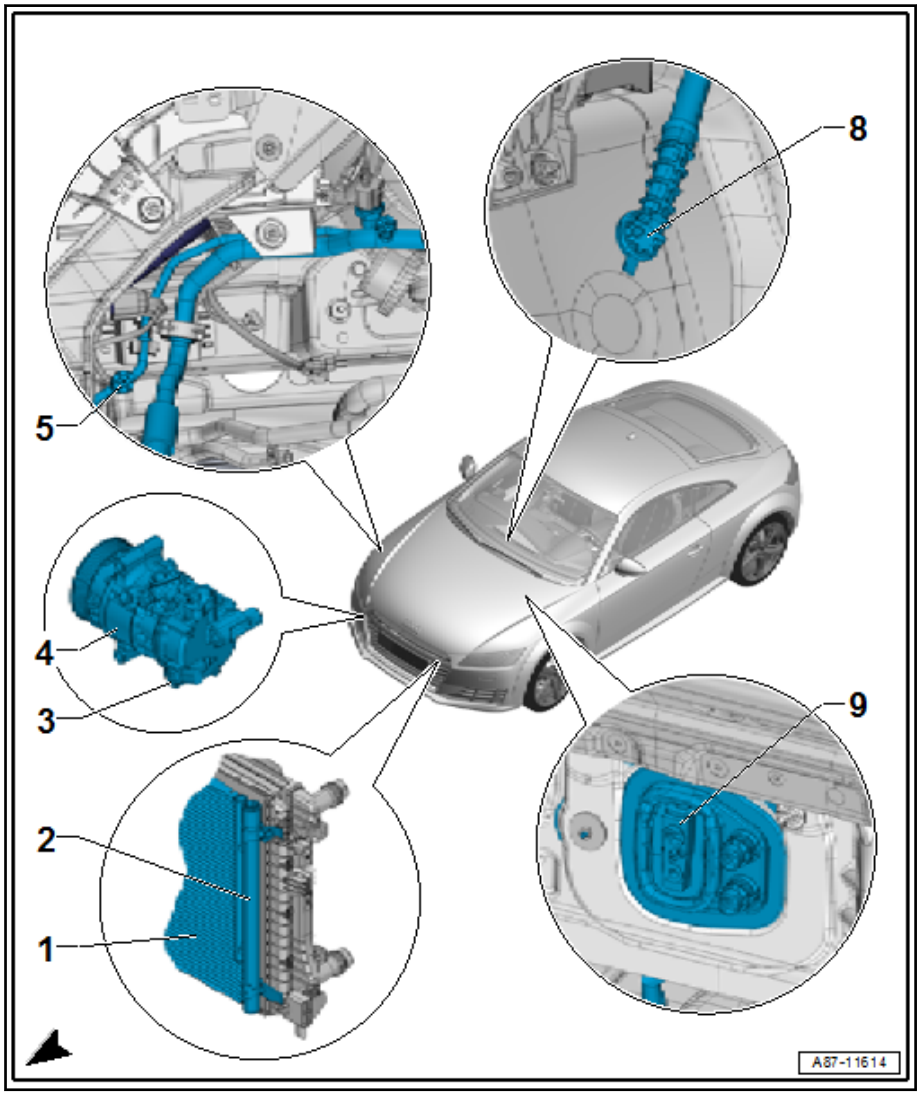
- ❑ With integrated receiver/dryer
- ❑ Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

2 - Dryer Cartridge

- ❑ Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

3 - A/C Compressor Regulator Valve -N280-

- ❑ Check using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations (for the Climatronic Control Module -J255-).



Note

- ♦ *Certain malfunctions at the A/C Compressor Regulator Valve -N280- (for example, a stuck valve or a short circuit in the coil) can lead to a complaint regarding the A/C compressor (A/C system is not cooling, the evaporator ices over, etc.). If the A/C Compressor Regulator Valve -N280- (and not the A/C compressor itself) is the cause, the A/C compressor can be serviced by replacing the A/C Compressor Regulator Valve -N280-. Refer to ⇒ Refrigerant R134a, Servicing; Rep. Gr. 87; Refrigerant Circuit Components, Replacing or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Components, Replacing.*
- ♦ *The A/C Compressor Regulator Valve -N280- is not available as a replacement part for all A/C compressors. If the A/C Com-*

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pressor Regulator Valve -N280- is not available as an individual A/C compressor part (different versions), then the entire A/C compressor must be replaced if there is a complaint. Refer to the ⇒ Electronic Parts Catalog (ETKA).

4 - A/C Compressor

- ❑ Allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Overview. Refer to ⇒ -3.1 A/C Compressor Power Unit", page 153 .
- ❑ There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ Electronic Parts Catalog (ETKA).

5 - High Pressure Side Service Connection

- ❑ For measuring, discharging and charging

Caution

Danger due to refrigerant coming out under pressure when there is a faulty valve in the refrigerant circuit.
Danger of frost bite to skin and other parts of the body.
Only remove when the refrigerant circuit is empty; the connection is without a valve. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant circuit; Overview - Refrigerant Circuit Components.

- ❑ There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145 or ⇒ Electronic Parts Catalog (ETKA).
- ❑ Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

6 - Refrigerant Circuit Pressure Sensor -G805-

- ❑ Check using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .
- ❑ Removing and Installing. Refer to ⇒ R2.3 efrigerant Circuit Pressure SensorG805, Removing and Installing", page 113 .

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7 - Low Pressure Side Service Connection

- ❑ For measuring and discharging

Caution

Danger due to refrigerant coming out under pressure when there is a faulty valve in the refrigerant circuit.

Danger of frost bite to skin and other parts of the body.
Only remove when the refrigerant circuit is empty; the connection is without a valve. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant circuit; Overview - Refrigerant Circuit Components.

- ❑ There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145 or ⇒ Electronic Parts Catalog (ETKA).
- ❑ Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

8 - Condensation Water Drain

- ❑ Check using the Vehicle Diagnostic Tester. Refer to ⇒ W5.20 ater Drain Hose, Checking", page 273 .
- ❑ Removing and Installing. Refer to ⇒ W5.21 ater Drain Hose, Removing and Installing", page 278 .

9 - Expansion Valve

- ❑ There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145 or ⇒ Electronic Parts Catalog (ETKA).
- ❑ Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

Plenum Chamber Water Drain, Vehicle Interior Forced Air Extraction

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1 - Left Plenum Chamber Water Drain

- ❑ Checking and Cleaning. Refer to ⇒ C6.9 hamber Water Drain, Checking", page 309 .

2 - Right Plenum Chamber Water Drain

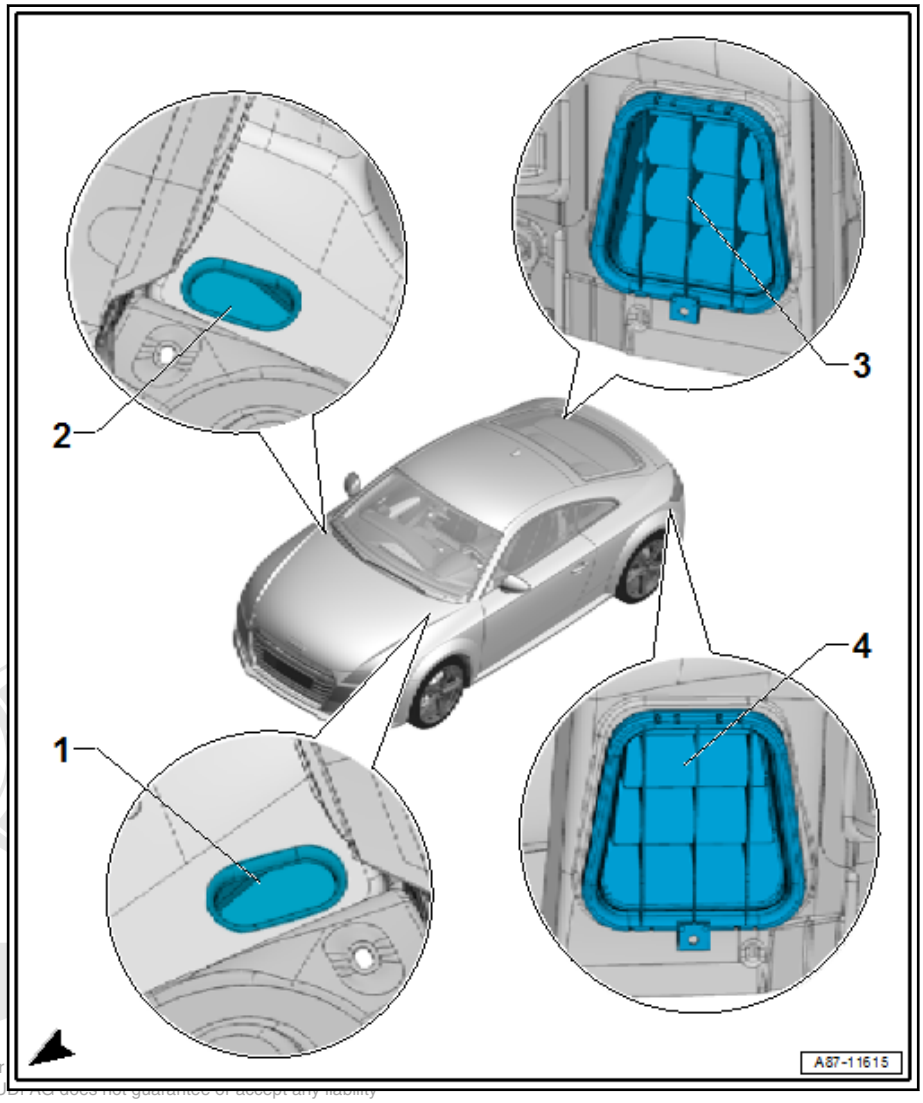
- ❑ Checking and Cleaning. Refer to ⇒ C6.9 hamber Water Drain, Checking", page 309 .

3 - Right Vehicle Interior Forced Air Extraction

- ❑ Check using the Vehicle Diagnostic Tester. Refer to ⇒ I6.7 nterior Forced Air Extraction, Checking", page 301 .
- ❑ Removing and Installing. Refer to ⇒ I6.8 nterior Forced Air Extraction, Removing and Installing", page 306 .

4 - Left Vehicle Interior Forced Air Extraction

- ❑ Check using the Vehicle Diagnostic Tester. Refer to ⇒ I6.7 nterior Forced Air Extraction, Checking", page 301 .
- ❑ Removing and Installing. Refer to ⇒ I6.8 nterior Forced Air Extraction, Removing and Installing", page 306 .



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1.2 Component Location Overview - Components in Front Vehicle Interior

Vehicle Interior at Front Left (Controls with Instrument Panel Vents, Buttons and Switches). Refer to ⇒ page 89 .

Vehicle Interior at Front Left (Vents, Actuators, Temperature Sensors, Etc.). Refer to ⇒ page 93 .

Vehicle Interior at Front Right. Refer to ⇒ page 96 .

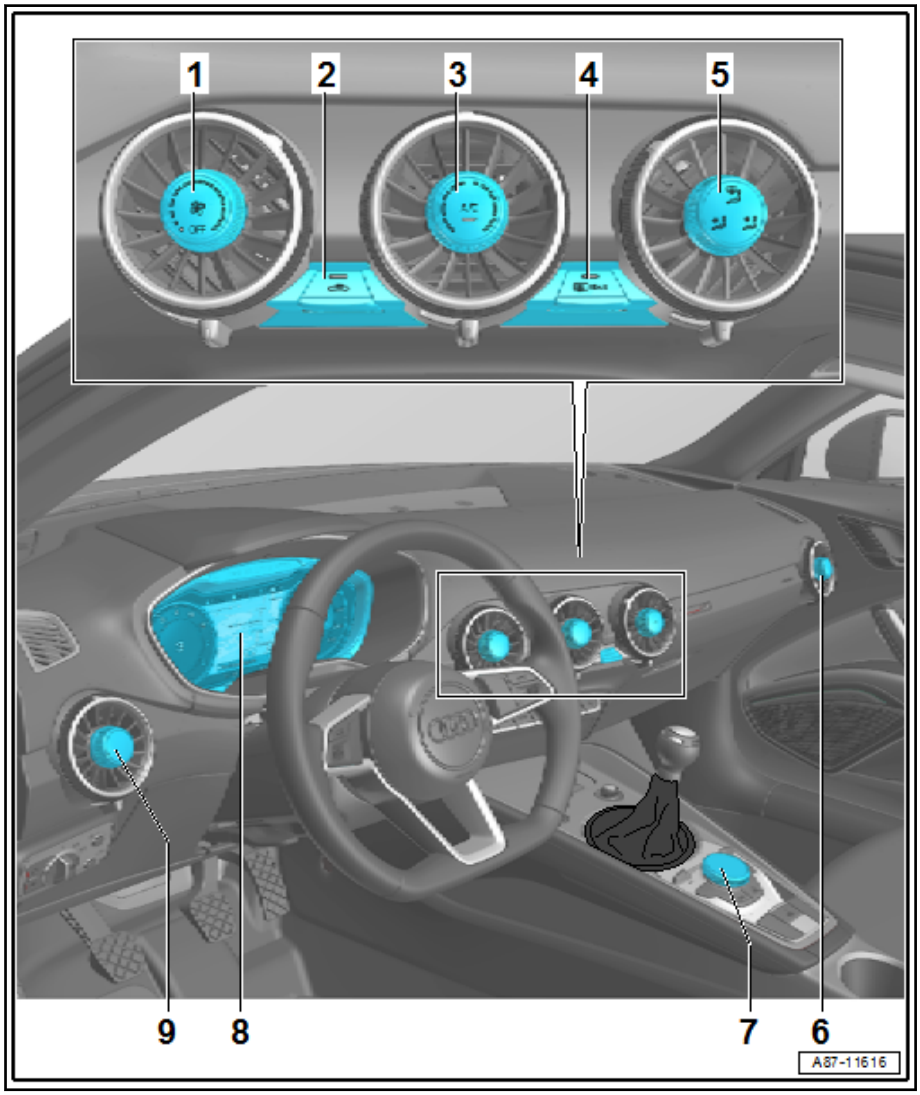
Vehicle Interior at Front Left (Controls with Instrument Panel Vents, Buttons and Switches)

Note

The following illustration shows the buttons and display control heads with symbols as they are installed on a vehicle with a manual climate control system.

1 - Left Center Instrument Panel Vent (with Front A/C Display Control Head 2 - E775-)

- ❑ Instrument Panel Vent, Removing and Installing. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
- ❑ Front A/C Display Control Head 2 -E775-, Removing and Installing. Refer to ⇒ K7.2.3 nob for Fresh Air Blower Speed (and A/C System Operation) on Front A/C Display Control Head 2E775, Removing and Installing", page 336 .
- ❑ Overview. Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .



Note

- ♦ *There are different versions, depending on the version of the vehicle / A/C system. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- ♦ *The layout for the Front A/C Display Control Head 2 -E775- is different depending on the vehicle version (with LHD or RHD; refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311).*

2 - Fresh Air and Recirculating Air Mode Button -E781- or Defrost Button -E782-

- ❑ Fresh Air and Recirculating Air Mode Button -E781- / Defrost Button -E782-, Removing and Installing. Refer to ⇒ A7.2.8 ir and Recirculating Air Mode ButtonE781/Defrost ButtonE782, Removing and Installing", page 351 .

❑ Overview. Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .

Note

- *There are different versions and functions, depending on the equipment and version of the vehicle, as well as the A/C system version. For a vehicle with a manual climate control system with a Fresh Air and Recirculating Air Mode Button -E781- (refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311), or for a vehicle with an automatic climate control system with a Defrost Button -E782- (refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320). Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The layout is different depending on the vehicle version (with LHD or RHD; refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320).*

3 - Center Instrument Panel Vent (with Front A/C Display Control Head 3 -E776-)

❑ Instrument Panel Vent, Removing and Installing. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

❑ Front A/C Display Control Head 3 -E776-, Removing and Installing. Refer to ⇒ K7.2.4 nob for Temperature (and A/C System Operation) on Front A/C Display Control Head 3E776, Removing and Installing", page 339.

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❑ Overview. Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .

Note

There are different versions, depending on the version of the vehicle / A/C system. Refer to the ⇒ Electronic Parts Catalog (ETKA).

4 - Rear Window Defogger Button -E230-

❑ Rear Window Defogger Button -E230-, Removing and Installing. Refer to ⇒ R7.2.7 ear Window Defogger ButtonE230, Removing and Installing", page 350 .

❑ Overview. Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .

Note

There are different versions depending on the vehicle equipment. Refer to the ⇒ Electronic Parts Catalog (ETKA).

5 - Right Center Instrument Panel Vent (with Front A/C Display Control Head 4 -E777-)

- ❑ Instrument Panel Vent, Removing and Installing. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
- ❑ Front A/C Display Control Head 4 -E777-, Removing and Installing. Refer to ⇒ f7.2.5 or Air Distribution on Front A/C Display Control Head 4E777, Removing and Installing", page 343 .
- ❑ Overview. Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .

Note

- *There are different versions, depending on the version of the vehicle / A/C system. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The layout for the Front A/C Display Control Head 2 -E775- is different depending on the vehicle version (with LHD or RHD). Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .*

6 - Right Instrument Panel Vent (with Cover or Front A/C Display Control Head 5 -E778-)

- ❑ Instrument Panel Vent, Removing and Installing. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
- ❑ Cover / Front A/C Display Control Head 5 -E778-, Removing and Installing. Refer to ⇒ K7.2.6 nob for Seat Heating (and Neck Heating) on Front A/C Display Control Head 5E778, Removing and Installing", page 345 .
- ❑ Overview. Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior", page 282 .

Note

- *There are different versions, depending on the vehicle equipment and version. For a vehicle without the optional "seat heating" equipment, it is with a cover. For a vehicle with the optional "seat heating" equipment, it is with a knob for the Front A/C Display Control Head 5 -E778-. For a vehicle with the optional "seat heating with neck heating" equipment, it is with a rotary push button for the Front A/C Display Control Head 5 -E778-. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The layout is different depending on the vehicle version (with LHD or RHD). Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehi-*

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erWin

cles with Manual Climate Control System", page 311 and ⇒ *L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320* .

7 - Multimedia System Control Head

Note

Certain A/C system functions can be switched off and on using the Multimedia System Control Head -E380- or their function can be changed. The selected or changed functions are shown in the instrument cluster center display. Refer to the ⇒ Owner's Manual.

8 - Instrument Cluster

Note

Certain A/C system functions can be switched off and on using the Multimedia System Control Head -E380- or their function can be changed. The selected or changed functions are shown in the instrument cluster center display. Refer to the ⇒ Owner's Manual.

9 - Left Instrument Panel Vent (with Cover or Front A/C Display Control Head 1 -E774-)

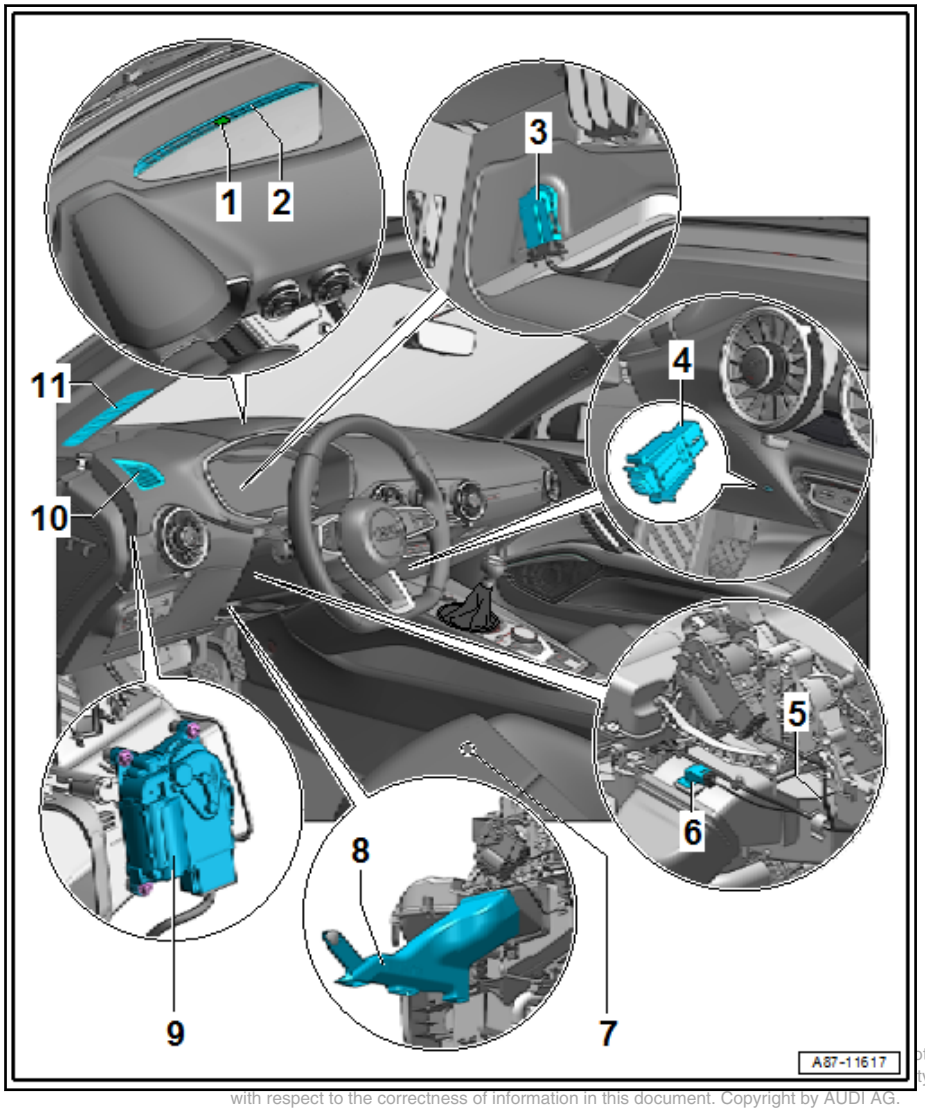
- Instrument Panel Vent, Removing and Installing. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
- Cover / Front A/C Display Control Head 1 -E774-, Removing and Installing. Refer to ⇒ K7.2.2 nob for Seat Heating (and Neck Heating) on Front A/C Display Control Head 1E774, Removing and Installing", page 333 .
- Overview. Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior", page 282 .

Note

There are different versions, depending on the vehicle equipment and version. For a vehicle without the optional "seat heating" equipment, it is with a cover. For a vehicle with the optional "seat heating" equipment, it is with a knob for the Front A/C Display Control Head 1 -E774-. For a vehicle with the optional "seat heating with neck heating" equipment, it is with a rotary push button for the Front A/C Display Control Head 1 -E774-. Refer to the ⇒ Electronic Parts Catalog (ETKA).

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Vehicle Interior at Front Left (Vents, Actuators, Temperature Sensors, Etc.)



1 - Sunlight Photo Sensor - G107-

- Only with an automatic climate control system
- Check using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Removing and Installing. Refer to ⇒ S9.1 unlight Photo SensorG107, Removing and Installing”, page 355 .

2 - Instrument Panel Windshield Vent

- Overview. Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior”, page 282 .
- Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

3 - Left Vent Temperature Sensor -G150- (Right Vent Temperature Sensor -G151-)

- Left Vent Temperature Sensor -G150- only on LHD vehicles with an automatic climate control system
- Check using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- An incorrectly installed vent temperature sensor causes flow-generated noise
- Removing and Installing. Refer to ⇒ V5.8 ent Temperature SensorG150/Right Vent Temperature SensorG151, Removing and Installing”, page 238 .

Note

Instead of the Left Vent Temperature Sensor -G150-, the Right Vent Temperature Sensor -G151- is installed behind the instrument cluster on RHD vehicles. It is located on the right side of the vehicle.

4 - Instrument Panel Temperature Sensor -G56-

- For determining the temperature in the vehicle interior
- Only installed on an automatic climate control system
- Removing and Installing. Refer to ⇒ I9.3 nstrument Panel Temperature SensorG56, Removing and Installing”, page 357 .
- Check using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

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Note

- *Installed in the storage compartment or in the knee bar on the driver side (for RHD vehicles, it is on the right side)*
- *The Instrument Panel Temperature Sensor -G56- calculates three different measured values that cannot be checked with service equipment. From these measured values the Climatronic Control Module -J255- calculates the temperature in the vehicle interior. Depending on the ambient conditions, the three calculated measured values may deviate from each other and only begin to come closer together after a longer period of operation or remaining stationary. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *A dirty sensor head or a taped off opening in the storage compartment / in the knee bar causes problems when regulating the A/C system. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*

5 - Heater and A/C Unit, Left Side

- ❑ Overview. Refer to ⇒ -5.1 Heater and A/C Unit", page 209 .
- ❑ Removing and Installing. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .
- ❑ Disassembling and assembling. Refer to ⇒ a5.11 nd A/C Unit, Disassembling and Assembling", page 244.

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6 - Footwell Vent Temperature Sensor -G192-

- ❑ Only installed on an automatic climate control system
- ❑ Removing and Installing. Refer to ⇒ F5.16 ootwell Vent Temperature SensorG192, Removing and Installing", page 253 .
- ❑ Check using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Note

Installed in the "right footwell" vent duct on RHD vehicles.

7 - Left Front Seat

- ❑ Equipment level with seat heating (and neck heating)
- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Information about the function of seat heating (and neck heating). Refer to ⇒ H2.4 eating", page 11 .
- ❑ Check the activation and function of the seat heating (and neck heating) using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Seat Heating (and Neck Heating), Servicing. Refer to ⇒ Body Interior; Rep. Gr. 74; Front Seat Covers and Cushions.
- ❑ Neck Heating, Servicing. Refer to ⇒ Body Interior; Rep. Gr. 72; Front Seats.

8 - Left Footwell Vent

- ❑ Overview. Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior", page 282 .

9 - Left Side Window Defroster Door Motor -V409- with Left Front Defroster/Upper Body Vent Shut-Off Door Motor Position Sensor -G318-

- ❑ Removing and Installing. Refer to ⇒ L4.10 eft Side Window Defroster Door MotorV409 with Left Front Defroster/Upper Body Vent Shut-Off Door Motor Position SensorG318, Removing and Installing", page 200 .
- ❑ Only installed on an automatic climate control system

10 - Left Side Instrument Panel Vent

- ❑ Overview. Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior", page 282 .
- ❑ Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

11 - Vent in Left A-Pillar Trim Panel

- ❑ Overview. Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior", page 282 .
- ❑ Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Vehicle Interior Trim Panels; A-Pillar Trim Panel, Removing and Installing.

Vehicle Interior at Front Right

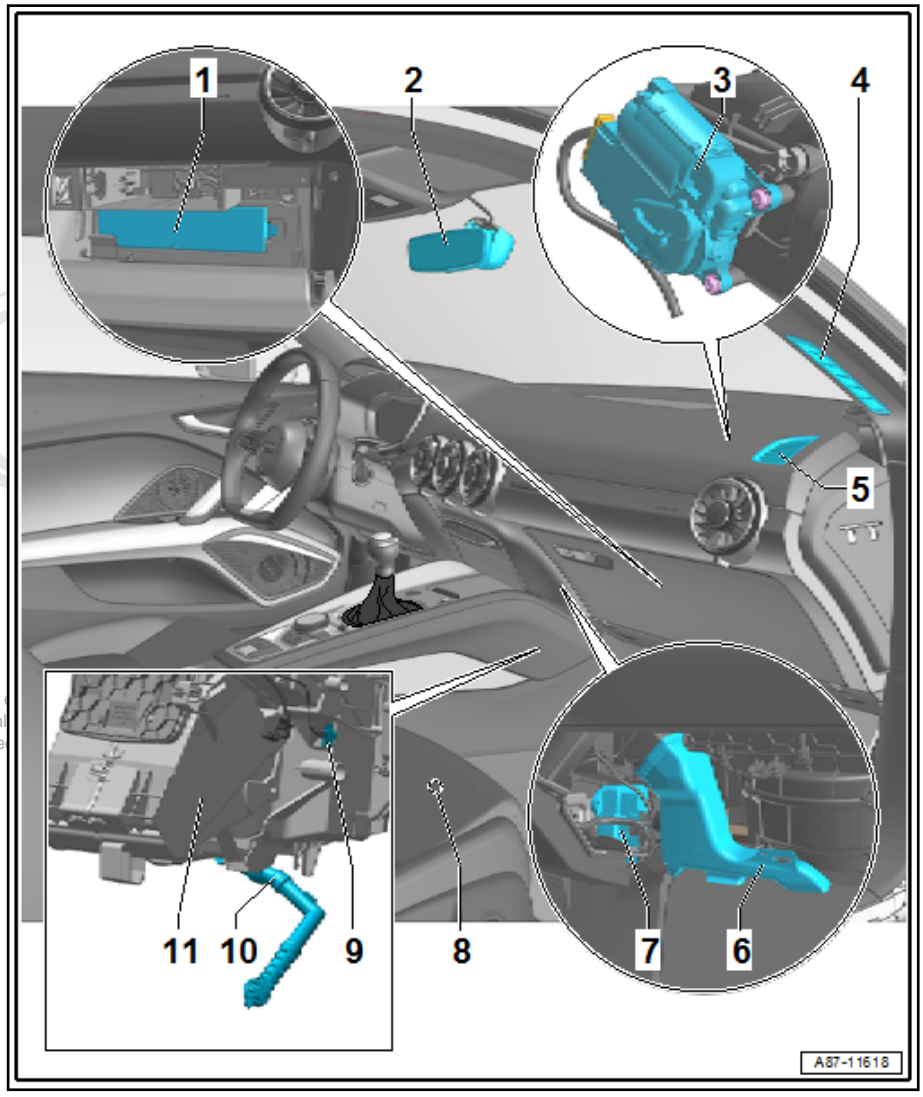
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1 - Cover for Dust and Pollen Filter Installation Slot

- ❑ There are different versions of the dust and pollen filter. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Dust and Pollen Filter Replacement Interval. Refer to the ⇒ Maintenance Tables.
- ❑ Dust and Pollen Filter, Removing and Installing. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247 .

2 - Interior Rearview Mirror with Humidity Sensor -G355-

- ❑ The Humidity Sensor -G355- is only installed on vehicles with an automatic climate control system
- ❑ Check using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Removing and Installing. Refer to ⇒ H9.8 umidity SensorG355, Removing and Installing", page 370 .



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Note

- ♦ *There is neither a Humidity Sensor -G355- nor a Air Quality Sensor -G238- (with the Humidity Sensor in Fresh Air Intake Duct -G657-) installed on vehicles with a manual climate control system. The permissible stop time is currently calculated by characteristic curves that are influenced by the measured exterior temperature, the "Recirculating air mode" function and the operating condition of the windshield wipers. The calculated time must be greater than approximately 20 seconds so that the Stop function is permitted by the Climatronic Control Module -J255-. The stop time can be shortened at a lower exterior temperature, when the recirculating air mode is active and/or when it is raining to prevent the windshield and*

door windows from fogging up. If the calculated time for the Stop function is less than approximately 20 seconds, it is prevented.

- *The Humidity Sensor -G355- is integrated in the Rain/Light Recognition Sensor -G397- and cannot be replaced separately when faulty. Replace the Rain/Light Recognition Sensor -G397- (with the Humidity Sensor -G355-). Refer to ⇒ Body Exterior; Rep. Gr. 64; Windshield; Overview - Windshield and ⇒ Electrical Equipment; Rep. Gr. 92; Windshield Wiper System; Rain/Light Recognition Sensor, Removing and Installing.*
- *The removal of the Rain/Light Recognition Sensor -G397- (with the Humidity Sensor -G355-) is described in different assembly groups depending on the vehicle.*

3 - Right Side Window Defroster Door Motor -V410- with Right Front Defroster/Upper Body Vent Shut-Off Door Motor Position Sensor -G317-

- ❑ Only installed on an automatic climate control system
- ❑ Removing and Installing. Refer to ⇒ R4.11 ight Side Window Defroster Door MotorV410 with Right Front Defroster/Upper Body Vent Shut-Off Door Motor Position SensorG317, Removing and Installing", page 202 .

4 - Vent in Right A-Pillar Trim Panel

- ❑ Overview. Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior", page 282 .
- ❑ Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Vehicle Interior Trim Panels; A-Pillar Trim Panel, Removing and Installing.

5 - Right Side Instrument Panel Vent

- ❑ Overview. Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior", page 282 .
- ❑ Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

6 - Right Footwell Vent

- ❑ Overview. Refer to ⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior", page 282 .

7 - Climatronic Control Module -J255-

- ❑ Removing and Installing. Refer to ⇒ C7.2.1 limatronic Control ModuleJ255, Removing and Installing", page 332 .
- ❑ There are different versions in vehicles with a manual or automatic climate control system. Refer to the ⇒ Electronic Parts Catalog (ETKA)
- ❑ The Climatronic Control Module -J255- receives information from the various controls (control heads, regulators and buttons) via data wires or direct wire connections. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ The A/C system regulation is controlled via the selected presets on the controls. Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .
- ❑ Certain presets on the controls are transmitted by the Climatronic Control Module -J255- to secondary control modules via the data Bus (for example, the activation of the rear window defogger, the seat heating, etc. to the Vehicle Electrical System Control Module -J519-). The Vehicle Electrical System Control Module -J519- reports the change request back to the Climatronic Control Module -J255- and

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it then activates the indicator lamps in the controls. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

- ❑ Check using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ For additional information, refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System”, page 311 and ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System”, page 320 .

Note

There is neither a Humidity Sensor -G355- nor an Air Quality Sensor -G238- (with the Humidity Sensor in Fresh Air Intake Duct -G657-) installed on vehicles without an A/C system or with a manual climate control system. The permissible stop time is currently calculated by characteristic curves that are influenced by the measured exterior temperature, the “Recirculating air mode” function and the operating condition of the windshield wipers. The calculated time must be greater than approximately 20 seconds so that the Stop function is permitted by the Climatronic Control Module -J255-. The stop time can be shortened at a lower exterior temperature, when the recirculating air mode is active and/or when it is raining to prevent the windshield and door windows from fogging up. If the calculated time for the Stop function is less than approximately 20 seconds, it is prevented.

8 - Right Front Seat

- ❑ Equipment level with seat heating (and neck heating)
- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Information about the function of seat heating (and neck heating). Refer to ⇒ H2.4 eating”, page 11 .
- ❑ Check the activation and function of the seat heating (and neck heating) using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Seat Heating (and Neck Heating), Servicing. Refer to ⇒ Body Interior; Rep. Gr. 74; Front Seat Covers and Cushions.
- ❑ Neck Heating, Servicing. Refer to ⇒ Body Interior; Rep. Gr. 72; Front Seats.

9 - Evaporator Vent Temperature Sensor -G263-

- ❑ Check using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function (for the Climatronic Control Module -J255-). Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Removing and Installing. Refer to ⇒ E5.7 vaporator Vent Temperature SensorG263, Removing and Installing”, page 237 .

10 - Condensation Water Drain

- ❑ Check using the Vehicle Diagnostic Tester. Refer to ⇒ W5.20 ater Drain Hose, Checking”, page 273 .
- ❑ Removing and Installing. Refer to ⇒ W5.21 ater Drain Hose, Removing and Installing”, page 278 .

11 - Right Side Heater and A/C Unit

- ❑ Overview. Refer to ⇒ -5.1 Heater and A/C Unit”, page 209 .
- ❑ Removing and Installing. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing”, page 239 .

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- Disassembling and assembling. Refer to ⇒ a5.11 nd A/C Unit, Disassembling and Assembling", page 244 .

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2 Refrigerant Circuit

⇒ O2.1 verview - Refrigerant Circuit", page 101

⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105

⇒ R2.3 efrigerant Circuit Pressure SensorG805, Removing and Installing", page 113

⇒ A2.4 /C Compressor Regulator ValveN280, Checking Switch-On Signal", page 115

⇒ W2.5 eight on Refrigerant Line", page 120

⇒ V2.6 alve, Removing and Installing", page 120

⇒ L2.7 ines, Disconnecting and Connecting from Condenser", page 122

⇒ R2.8 emoving and Installing", page 126

⇒ C2.9 artridge, Removing and Installing", page 128

⇒ L2.10 ines with Inner Heat Exchanger, Removing and Installing", page 139

⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145

⇒ C2.12 onnections on Low and High Pressure Side, Removing and Installing", page 148

⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150

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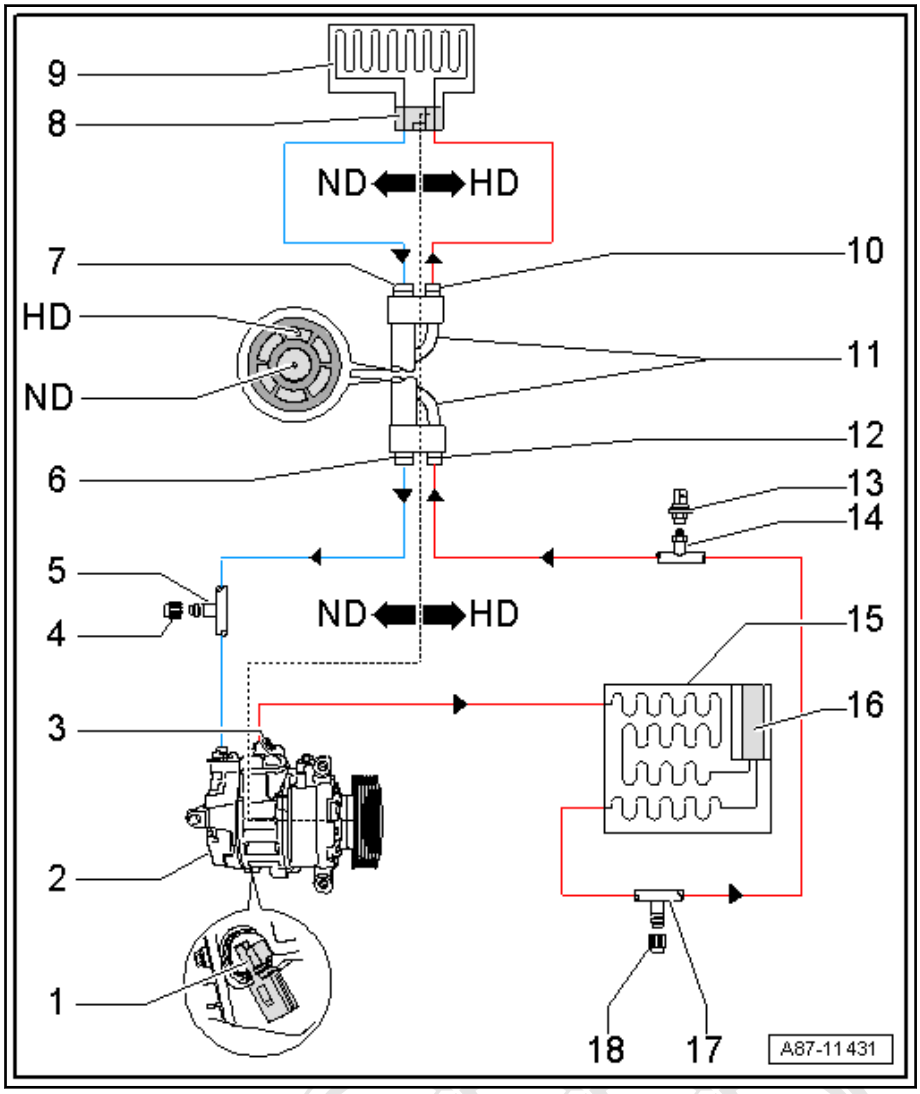
2.1 System Overview - Refrigerant Circuit

HD = high pressure side

ND = low pressure side

1 - A/C Compressor Regulator Valve -N280-

- To check the activation and function, use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function. Refer to ⇒ A2.4 /C Compressor Regulator ValveN280, Checking Switch-On Signal”, page 115 and ⇒ Wiring diagrams, Troubleshooting & Component locations.



Note

- *Certain malfunctions at the A/C Compressor Regulator Valve -N280- (for example, a stuck valve or a short circuit in the coil) can lead to a complaint regarding the A/C compressor (A/C system is not cooling, the evaporator ices over, etc.). If the A/C Compressor Regulator Valve -N280- (and not the A/C compressor itself) is the cause, the A/C compressor can be serviced by replacing the A/C Compressor Regulator Valve -N280-. Refer to ⇒ Refrigerant R134a, Servicing; Rep. Gr. 87; Refrigerant Circuit Components, Replacing or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Components, Replacing.*
- *The A/C Compressor Regulator Valve -N280- is not available as*

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a replacement part for all A/C compressors. If the A/C Compressor Regulator Valve -N280- is not available as an individual A/C compressor part (different versions), then the entire A/C compressor must be replaced if there is a complaint. Refer to the ⇒ Electronic Parts Catalog (ETKA).

2 - A/C Compressor

- ❑ There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ Electronic Parts Catalog (ETKA).
- ❑ Overview. Refer to ⇒ -3.1 A/C Compressor Power Unit", page 153 .

Note

An additional weight (balance weight, resonator in the refrigerant line to reduce noise) may be present on the refrigerant line on the low pressure side depending on the refrigerant line version and the production period. Refer to ⇒ W2.5 eight on Refrigerant Line", page 120 . Make sure that this component is not touching or can come in contact with other components during operation (noise). Refer to the ⇒ Electronic Parts Catalog (ETKA).

3 - Pressure Relief Valve

Caution

Danger due to refrigerant coming out under pressure when there is a faulty valve.
Danger of frost bite to skin and other parts of the body.
Only remove when the refrigerant circuit is empty. The connection does not have a valve.

4 - Closure Cap

- ❑ With seal
- ❑ Always screw on
- ❑ There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145 or ⇒ Electronic Parts Catalog (ETKA).

5 - Low Pressure Side Service Connection

- ❑ For measuring and discharging

Caution

Danger due to refrigerant coming out under pressure when there is a faulty valve in the refrigerant circuit.

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Danger of frost bite to skin and other parts of the body.
Only remove when the refrigerant circuit is empty; the connection is without a valve. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant circuit; Overview - Refrigerant Circuit Components.

- There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145 or ⇒ Electronic Parts Catalog (ETKA).

6 - Connection in Refrigerant Line - Low Pressure Side

- To the A/C compressor

7 - Connection in Refrigerant Line - Low Pressure Side

- From the expansion valve

8 - Expansion Valve

- Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .
- There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145 or ⇒ Electronic Parts Catalog (ETKA).

9 - Evaporator

- Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

10 - Connection in Refrigerant Line - High Pressure Side

- To the expansion valve

11 - Refrigerant Line with Inner Heat Exchanger

- In the inner heat exchanger, warm liquid refrigerant flowing on the high pressure side delivers energy to the cold vaporous refrigerant flowing on the low pressure side. This increases the efficiency of the A/C system.
- Removing and Installing. Refer to ⇒ L2.10 ines with Inner Heat Exchanger, Removing and Installing", page 139 .

12 - Connection in Refrigerant Line - High Pressure Side

- From the condenser

13 - Refrigerant Circuit Pressure Sensor -G805-

- To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Removing and Installing. Refer to ⇒ R2.3 efrigerant Circuit Pressure SensorG805, Removing and Installing", page 113 .

14 - Connection with Valve

15 - Condenser

- Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

16 - Dryer Cartridge

- Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

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17 - High Pressure Side Service Connection

- ❑ For measuring, discharging and charging

> **Caution**
> *Danger due to refrigerant coming out under pressure when there is a faulty valve in the refrigerant circuit.*
> *Danger of frost bite to skin and other parts of the body.*
> *Only remove when the refrigerant circuit is empty; the connection is without a valve. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant circuit; Overview - Refrigerant Circuit Components.*

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- ❑ There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145 or ⇒ Electronic Parts Catalog (ETKA).

18 - Closure Cap

- ❑ With seal
- ❑ Always screw on
- ❑ There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145 or ⇒ Electronic Parts Catalog (ETKA).

2.2 Overview - Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve

Condenser and Receiver/Dryer. Refer to ⇒ page 105 .

A/C Compressor, Refrigerant Lines and Expansion Valve. Refer to ⇒ page 108 .

Condenser, Receiver/Dryer

1 - Condenser

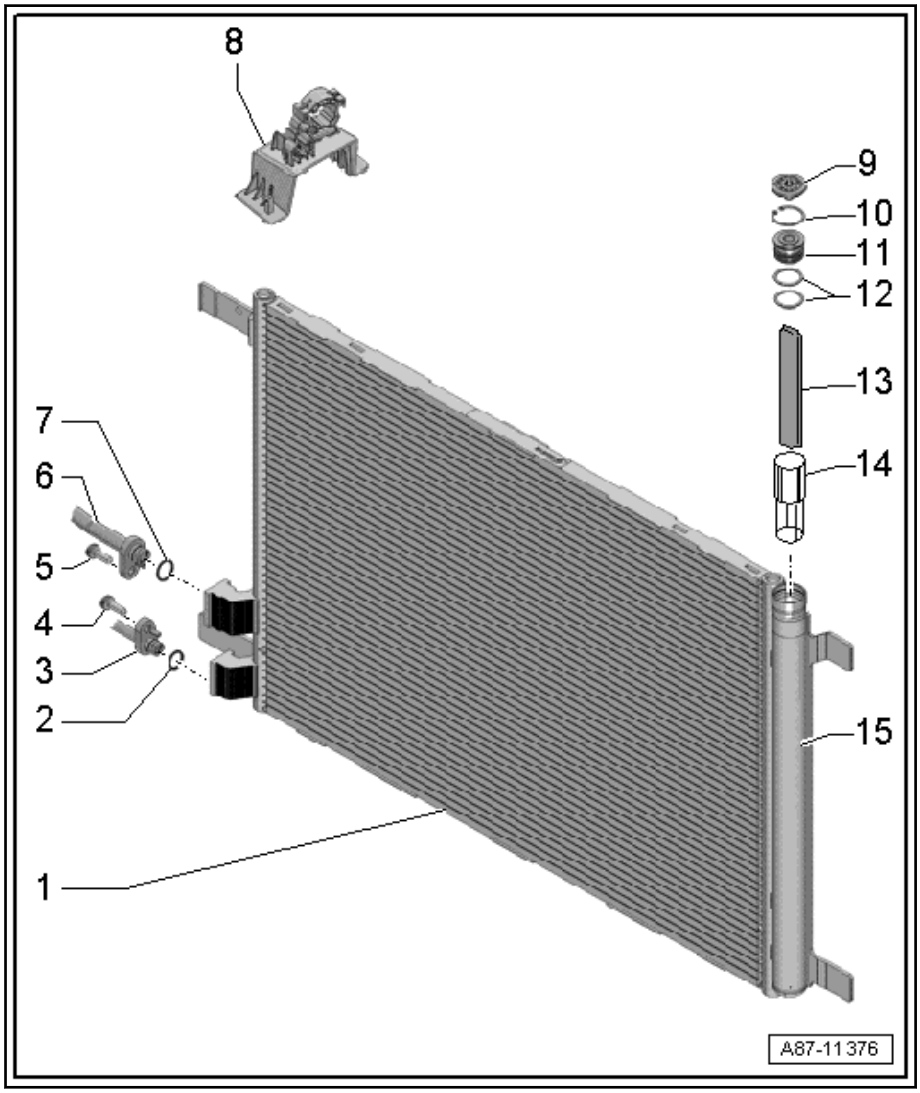
- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ R2.8 emoving and Installing", page 126 .

2 - O-Ring

- ❑ Replacing. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the versions.
- ❑ Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

3 - Refrigerant Line

- ❑ To the inner heat exchanger



Note

- ♦ *To remove and install, remove the right engine mount. Refer to ⇒ Engine Mechanical; Rep. Gr. 10; Subframe Mount; Engine Mount, Removing and Installing.*
- ♦ *Refrigerant lines from condenser to the inner heat exchanger and to the A/C compressor is available in different versions, depending on version of vehicle. On vehicles with a 2.5L TFSI engine (Audi TT RS), an additional connection point is installed in these refrigerant lines. Refer to the ⇒ Electronic Parts Catalog (ETKA). If necessary disconnect the refrigerant lines at these connection points. For bolts on the connection locations the same tightening specifications apply as for the bolts on the refrigerant lines on the inner heat exchanger or on the condenser.*

- *On vehicles with a 2.5L TFSI engine (Audi TT RS), the refrigerant line can only be removed from the condenser when the condenser is removed. If necessary, the refrigerant lines must be disconnected at the respective connection points.*

4 - Bolt

- ❑ 8 Nm

5 - Bolt

- ❑ 8 Nm

6 - Refrigerant Line

- ❑ From the A/C compressor

Note

- *Refrigerant lines from condenser to the inner heat exchanger and to the A/C compressor is available in different versions, depending on version of vehicle. On vehicles with a 2.5L TFSI engine (Audi TT RS), an additional connection point is installed in these refrigerant lines. Refer to the ⇒ Electronic Parts Catalog (ETKA). If necessary disconnect the refrigerant lines at these connection points. For bolts on the connection locations the same tightening specifications apply as for the bolts on the refrigerant lines on the inner heat exchanger or on the condenser.*
- *On vehicles with a 2.5L TFSI engine (Audi TT RS), the refrigerant line can only be removed from the condenser when the condenser is removed. If necessary, the refrigerant lines must be disconnected at the respective connection points.*

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7 - O-Ring

- ❑ Replacing. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the versions.
- ❑ Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

8 - Bracket

- ❑ For the refrigerant lines

9 - Cap

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).

10 - Circlip

11 - Cap

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Replace if damaged
- ❑ 2 Nm

12 - O-Rings

- ❑ Replacing. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the versions.
- ❑ Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

13 - Dryer Cartridge

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing:

- ♦ Denso condenser. Refer to ⇒ C2.9.1 artridge, Removing and Installing, Denso Condenser", page 128 .
- ♦ Modine condenser. Refer to ⇒ C2.9.2 artridge, Removing and Installing, Modine Condenser", page 131 .
- ♦ Showa/Keihin condenser. Refer to ⇒ C2.9.3 artridge, Removing and Installing, Showa/Keihin Condenser", page 137 .

14 - Screen

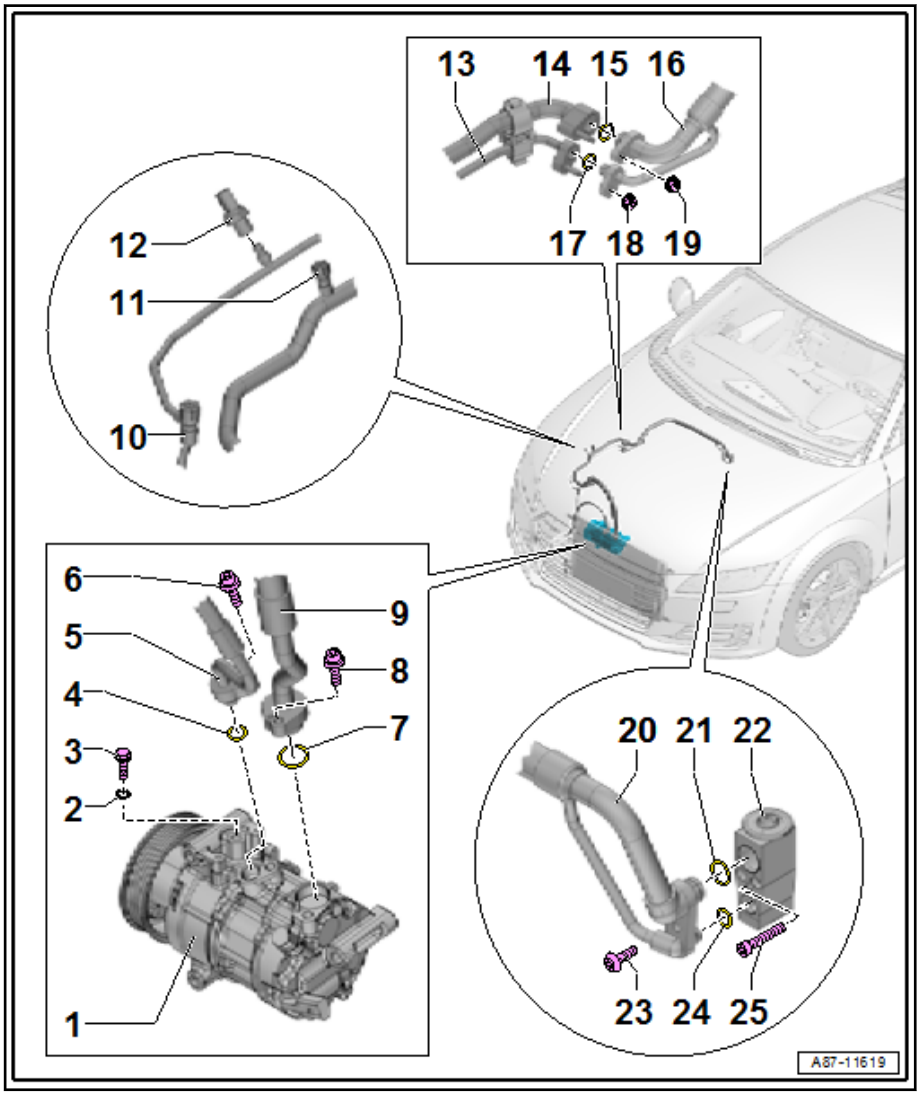
- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ C2.9.2 artridge, Removing and Installing, Modine Condenser", page 131 .

15 - Receiver/Dryer

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Is integrated in the condenser on this version

A/C Compressor, Refrigerant Lines and Expansion Valve

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1 - A/C Compressor

- ❑ With A/C Compressor Regulator Valve -N280-
- ❑ Overview. Refer to ⇒ -3.1 A/C Compressor Power Unit", page 153 .
- ❑ There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ Electronic Parts Catalog (ETKA).

2 - Seal

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Coat the O-ring with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .
- ❑ Replace

3 - Fluid Drain Plug

Caution

Danger due to refrigerant coming out under pressure when there is a faulty valve in the refrigerant circuit.
Danger of frost bite to skin and other parts of the body.
Only remove when the refrigerant circuit is empty; the connection is without a valve. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Overview - Refrigerant Circuit Components.

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Tightening specification:

♦ Denso A/C compressor - 30 Nm

♦ Sanden A/C compressor - 10 Nm

4 - O-Ring

- ❑ Replace. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.
- ❑ Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

5 - Refrigerant Line

- ❑ To the condenser

6 - Bolt

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- ❑ 22 Nm

7 - O-Ring

- ❑ Replace. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.
- ❑ Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

8 - Bolt

- ❑ 22 Nm

9 - Refrigerant Line

- ❑ From the inner heat exchanger
- ❑ Additional weight on the refrigerant line. Refer to ⇒ W2.5 eight on Refrigerant Line", page 120 .

Note

- ♦ *An additional weight (balance weight, resonator in the refrigerant line to reduce noise) may be present on this refrigerant line depending on the refrigerant line version and the production period. Make sure that this component is not touching or can come in contact with other components during operation (noise). Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- ♦ *To remove and install, remove the right engine mount. Refer to ⇒ Engine Mechanical; Rep. Gr. 10; Subframe Mount; Engine Mount, Removing and Installing.*

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10 - High Pressure Side Service Connection

Caution

Danger due to refrigerant coming out under pressure when there is a faulty valve in the refrigerant circuit.
Danger of frost bite to skin and other parts of the body.
Only remove when the refrigerant circuit is empty; the connection is without a valve. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant circuit; Overview - Refrigerant Circuit Components.

- ❑ There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145 or ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ C2.12 onnections on Low and High Pressure Side, Removing and Installing", page 148 .

11 - Low Pressure Side Service Connection

Caution

Danger due to refrigerant coming out under pressure when there is a faulty valve in the refrigerant circuit.
Danger of frost bite to skin and other parts of the body.
Only remove when the refrigerant circuit is empty; the connection is without a valve. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant circuit; Overview - Refrigerant Circuit Components.

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- ❑ There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145 or ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ C2.12 onnections on Low and High Pressure Side, Removing and Installing", page 148 .

12 - Refrigerant Circuit Pressure Sensor -G805-

- ❑ 5 Nm
- ❑ To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Removing and Installing. Refer to ⇒ R2.3 efrigerant Circuit Pressure SensorG805, Removing and Installing", page 113 .

13 - Refrigerant Line - High Pressure Side

- ❑ To the refrigerant line with the inner heat exchanger

Note

To remove and install, remove the right engine mount. Refer to ⇒ Engine Mechanical; Rep. Gr. 10; Subframe Mount; Engine Mount, Removing and Installing.

14 - Refrigerant Line - Low Pressure Side

- ❑ To the refrigerant line with the inner heat exchanger

Note

To remove and install, remove the right engine mount. Refer to ⇒ Engine Mechanical; Rep. Gr. 10; Subframe Mount; Engine Mount, Removing and Installing.

15 - O-Ring

- ❑ Replace. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.
- ❑ Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

16 - Refrigerant line with inner heat exchanger

- From the condenser and A/C compressor
- Removing and Installing. Refer to ⇒ L2.10 ines with Inner Heat Exchanger, Removing and Installing", page 139 .

17 - O-Ring

- Replace. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.
- Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

18 - Nut

- 8 Nm

19 - Nut

- 8 Nm

20 - Refrigerant line with inner heat exchanger

- To the expansion valve
- Removing and Installing. Refer to ⇒ L2.10 ines with Inner Heat Exchanger, Removing and Installing", page 139 .

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21 - O-Ring

- Replace. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.
- Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

22 - Expansion Valve

- There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- Removing and Installing. Refer to ⇒ V2.6 alve, Removing and Installing", page 120 .

Note

There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ Electronic Parts Catalog (ETKA).

23 - Bolt

- 8 Nm

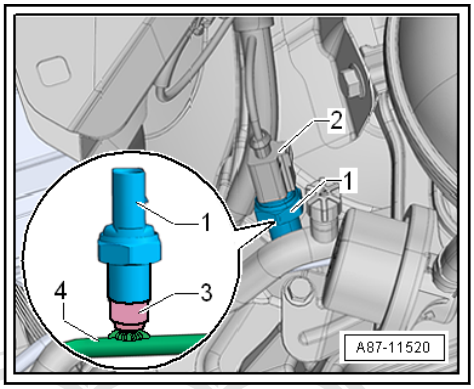
24 - O-Ring

- Replace. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.
- Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

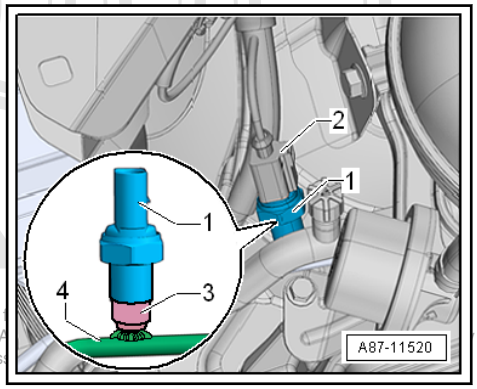
25 - Bolt

- Quantity: 2
- 10 Nm

2.3 Refrigerant Circuit Pressure Sensor - G805-, Removing and Installing



Removing



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WARNING

Danger due to refrigerant coming out under pressure when the refrigerant line is damaged.

Danger of frost bite to skin and other parts of the body.

- *Carefully remove the pressure sensor -1- while paying attention to the connection between the switch connection -3- and the refrigerant line -4-.*
- *If the connection between the switch connection -3- and the refrigerant line -4- becomes deformed while removing the pressure sensor -1- (for example, because of a stuck O-ring), counterhold on the switch connection -3- with suitable pliers when removing the pressure sensor -1-.*

Danger due to refrigerant coming out under pressure when there is a faulty valve in the refrigerant circuit.

Danger of frost bite to skin and other parts of the body.

- *If refrigerant leaks out of the switch connection for longer than one second when loosening the pressure sensor -1- immediately retighten the pressure sensor -1-.*
- *Discharge the refrigerant circuit to remove. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.*
- *Replace the faulty valve in the refrigerant line switch connection. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Overview - Refrigerant Circuit Components.*

– Disconnect the connector -2-.

– Loosen and remove the pressure sensor -1-.

Installing

Install in the reverse order of removal while noting the following:

- Tightening specification. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

Note

O-Ring, Replacing. Refer to ⇒ S4.10 ealing Rings", page 58 .
Allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

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2.4 A/C Compressor Regulator Valve - N280-, Checking Switch-On Signal

Note

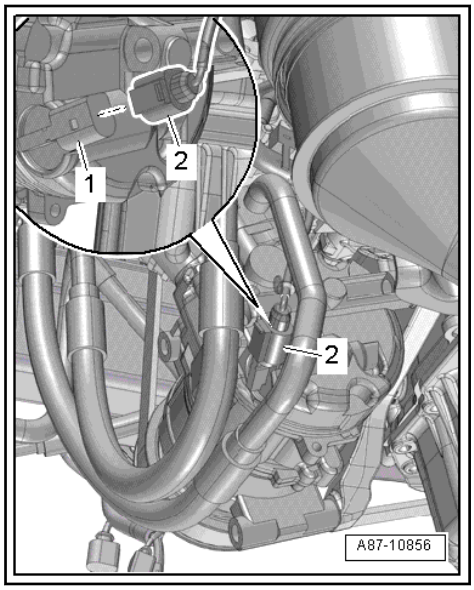
- *The following describes the test an A/C compressor without an A/C Clutch -N25-. The test is to be performed in the same way for vehicles with a different compressor type or a different manufacturer.*
- *However, for an A/C compressor with an A/C Clutch -N25-, a 3-pin connector may be installed. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *Certain malfunctions at the A/C Compressor Regulator Valve -N280- (for example, a stuck valve or a short circuit in the coil) can lead to a complaint regarding the A/C compressor (A/C system is not cooling, the evaporator ices over, etc.). If the A/C Compressor Regulator Valve -N280- (and not the A/C compressor itself) is the cause, the A/C compressor can be serviced by replacing the A/C Compressor Regulator Valve -N280-. Refer to ⇒ Refrigerant R134a, Servicing; Rep. Gr. 87; Refrigerant Circuit Components, Replacing or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.*
- *The A/C Compressor Regulator Valve -N280- is not available as a replacement part for all A/C compressors. If the A/C Compressor Regulator Valve -N280- is not available as an individual A/C compressor part (different versions), then the entire A/C compressor must be replaced if there is a complaint. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *To replace the A/C Compressor Regulator Valve -N280- on an A/C compressor with an A/C Clutch -N25-, any connector terminals must be removed from the connector housing on the A/C Compressor Regulator Valve -N280-. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit Components, Replacing or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.*

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Special tools and workshop equipment required

- Vehicle Diagnostic Tester
- Vehicle Diagnostic Tester - Test Adapter - 3 Pin -VAS 5257- or Connector Test Set -V.A.G 1594D-
- Probe -VAS 5051/8-

Test Sequence

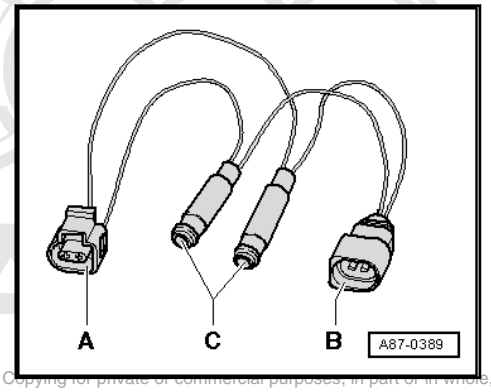


– Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing.
– Disconnect the connector -2-.
– Using an adapter cable, re-establish the connection between the connector -2- and the A/C Compressor Regulator Valve -N280- -1-.

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Note

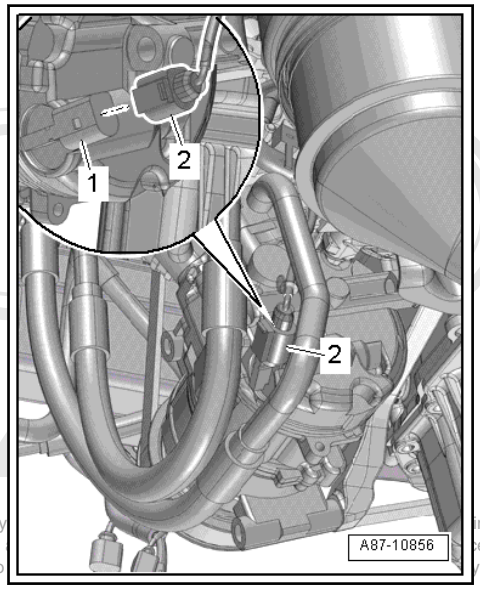
- *Depending on the A/C compressor version (with or without the A/C Clutch -N25-), different adapter cables are to be used. The Vehicle Diagnostic Tester - Test Adapter - 3 Pin -VAS 5257- is used, for example, on an A/C compressor without an A/C Clutch -N25- and the Vehicle Diagnostic Tester - Test Adapter - 2 Pin -VAS 5256- is used on an A/C compressor with an A/C Clutch -N25-. If no suitable adapter is available, the connection between the connector -1- and the connector -2- can be established using components from the Connector Test Set -V.A.G 1594 D-.*
- *However an adapter cable can also be used for this test. To do so, use, for example, one 2-pin connector each -A and B- (part number 1J0 973 702 and 1J0 973 802 and related connector terminals), two commercially available sockets for banana connectors -C- and two wires with 0.5 mm ^{2} diameter on an A/C compressor with an A/C Clutch -N25-.*



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- *The activation of the A/C Compressor Regulator Valve -N280- and the current measured by the control head, Climatronic Control Module -J255-/A/C Control Module -J301-, which flows through the A/C Compressor Regulator Valve -N280-, is displayed in the control head measured values. "Read the measured values" in the "Guided Fault Finding" function using the ⇒ Vehicle diagnostic tester.*
- *For an A/C compressor with a different connector (for example, a 3-pin connector on an A/C compressor with an A/C Clutch -N25-), note the connector assignment when connecting the measuring cables. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*

– Connect the Probe -VAS 5051/8- to the adapter cables.



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- Measuring cable (signal wire) to contact “2” of connector -2-.
- Measuring cable (shielding, ground) to contact “1” of connector -2-.

– Set the operating mode “measuring equipment” DSO (digital storage oscilloscope) on the Vehicle Diagnostic Tester.

– Select the setting 5V/Div = 0.5 ms/Div (5 V DC and 0.5 milliseconds per unit).

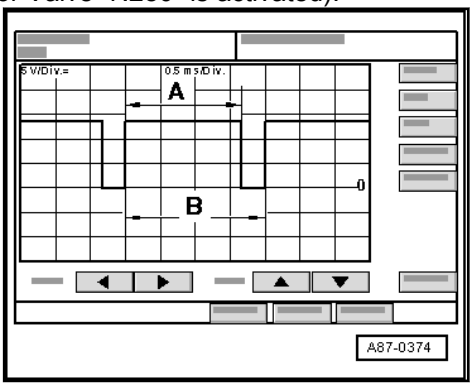
– Start the engine.

– Set the temperature preset for the driver- and front passenger side to “Lo” on the A/C system control head. By pressing the buttons Auto and AC, the activation of the A/C Compressor Regulator Valve -N280- is switched on and off.

– Set the temperature knob to the “cold” stop on the control head. By pressing the button AC, the activation of the A/C Compressor Regulator Valve -N280- is switched on and off.

The following is displayed on the oscilloscope screen depending on the control head setting:

- There is no square-wave signal when “OFF” is selected (the indicator lamp in the A/C button does not turn on) (the A/C Compressor Regulator Valve -N280- is not activated).
- With “Auto” mode selected (only automatic climate control system) and the A/C button pressed (indicator lamp in the A/C button illuminates), there is a square-wave signal with an impulse width -A- between 75 % and 100 % (the A/C Compressor Regulator Valve -N280- is activated).



Note

- *The illustration shows a signal with a duty cycle of approximately 80 %.*
- *The impulse width -A- is dependent on the desired cooling output, electrical system voltage, etc. (over the width of region -A-, the voltage is regulated via the A/C Compressor Regulator Valve -N280- by the Climatronic Control Module -J255-/A/C Control Module -J301- control head).*
- *The signal distance -B- is always 2 milliseconds. This corresponds to frequency of 500 Hertz.*
- *The duty cycle is determined by the ratio of impulse width -A- and signal distance -B-.*

– The impulse width of the square-wave signal changes (duty cycle between 100% and greater than 30%, the A/C Compressor Regulator Valve -N280- is activated so that the necessary compressor output is obtained to reach the specified temperatures) depending on the setting on the control head and the measured ambient influences.

Note

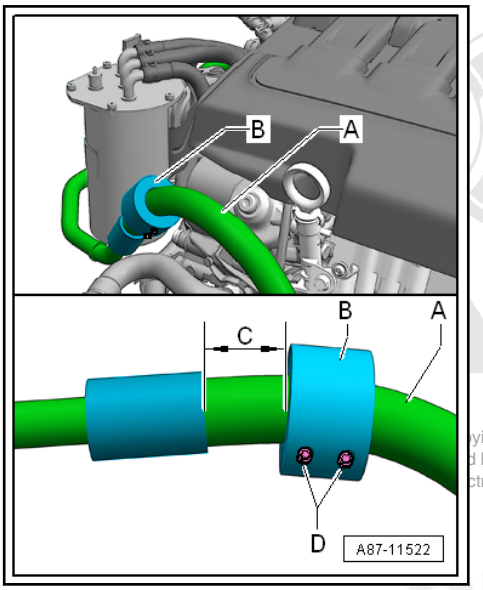
- *With the setting, for example, "Auto" mode (automatic climate control system), "Lo" temperature setting and the A/C button pressed (indicator lamp in the A/C button illuminates), the A/C Compressor Regulator Valve -N280- is activated so that the maximum permissible current of approximately 0.65 A flows via the A/C Compressor Regulator Valve -N280- (maximum compressor output).*
- *In control mode, actuation time is governed by required cooling output and vehicle electrical system voltage, for example. It is however always of sufficient duration to achieve a mean current of 0.3 A.*

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2.5 Additional Weight on Refrigerant Line

Note

An additional weight (balance weight, resonator in the refrigerant line to reduce noise) -B- may be present on the refrigerant line -A- depending on the vehicle and refrigerant line version and the production period. Refer to the ⇒ Electronic Parts Catalog (ETKA).



- *Make sure that this additional weight -B- sits securely on the refrigerant line and does not touch or can come in contact with other components during operation (noise).*
- *The refrigerant line -A- must not be crushed by the additional weight -B-.*

- Bolt tightening specification -D-: 10 Nm
- Dimension -C-: 30 mm (1.18 in.)

2.6 Expansion Valve, Removing and Installing

Special tools and workshop equipment required

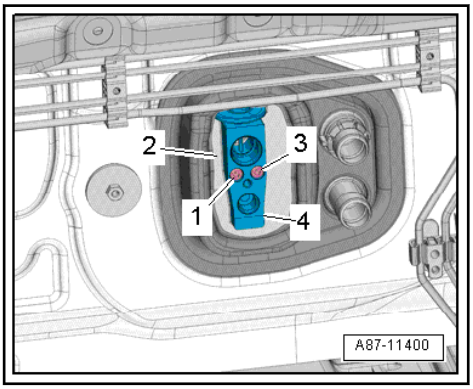
- Engine Bung Set -VAS 6122-

Removing

– Remove the refrigerant lines with inner heat exchanger. Refer to ⇒ L2.10 ines with Inner Heat Exchanger, Removing and Installing", page 139 .

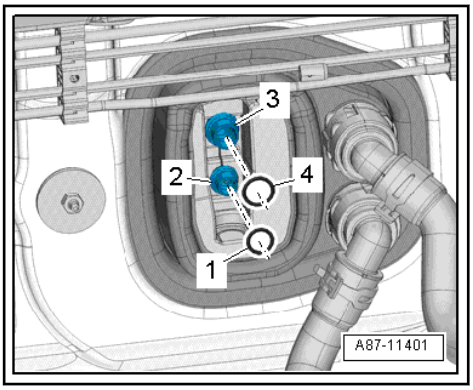
– Remove the bolts -1 and 3-.

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– Remove the expansion valve -4- from the heat shield insulation -2-.
– Seal the open lines and connections with clean plugs from the Engine Bung Set -VAS 6122-.

Installing



Install in the reverse order of removal while noting the following:

Note

There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ Electronic Parts Catalog (ETKA).

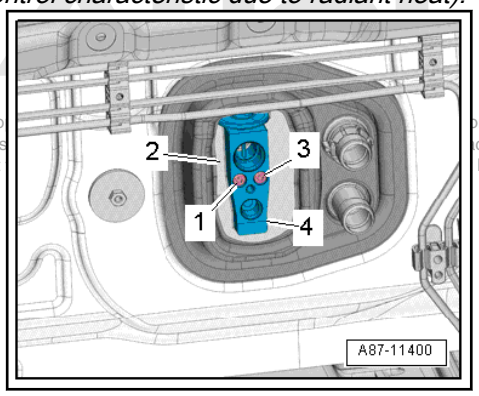
– Replace the O-rings. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.
– Install the O-rings -1 and 4- onto the connecting pipes -2 and 3- to the evaporator.

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Note

- *The expansion valve is available in different versions (same housing but different control characteristic). Allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Check the refrigerant pipes leading to the evaporator for contamination and damage.*
- *Coat the O-rings with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .*
- *Check the O-rings for proper seating on the evaporator connecting pipes.*
- *If the heat shield insulation -2- is missing or not installed correctly, it can cause reduced output of the A/C system (change of the set control characteristic due to radiant heat).*

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Tightening Specifications

- Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105
- Refer to ⇒ Rep. Gr. 21; Turbocharger; Overview - Turbocharger.

2.7 Refrigerant Lines, Disconnecting and Connecting from Condenser

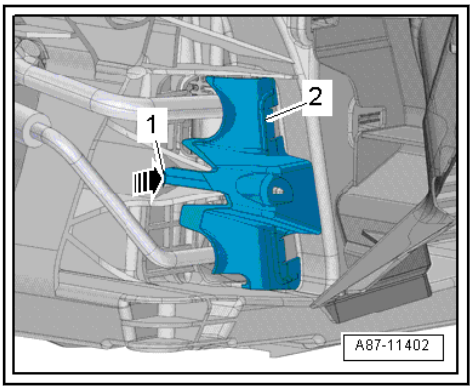
Note

Certain tools are required to discharge the refrigerant circuit. These work procedures may only be performed by trained personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

Special tools and workshop equipment required

- Engine Bung Set -VAS 6122-

Removing

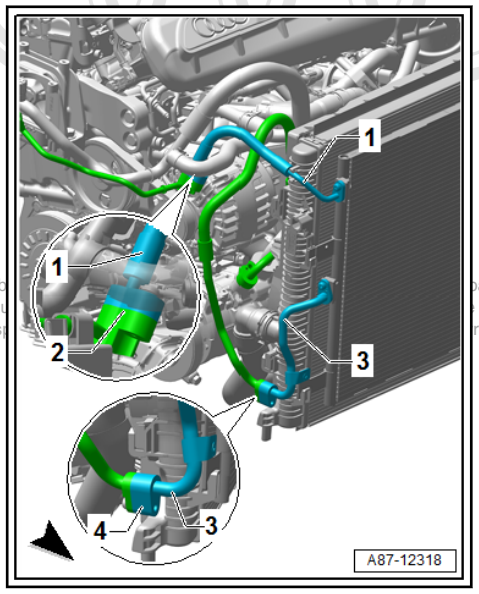


– Discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.
– Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper (Overview - Front Bumper).
– Release the tab -1- in the direction of -arrow- and remove the cover -2-.

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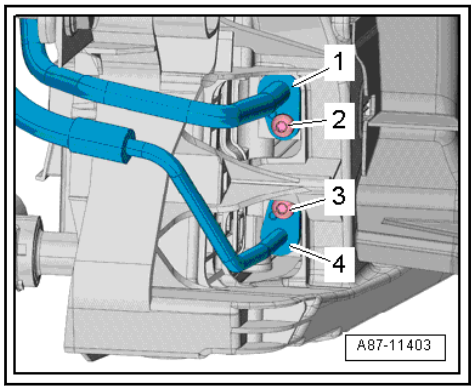
Note

- *Depending on the model there are different version of the cover -2-.*
- *Refrigerant lines from condenser to the inner heat exchanger and to the A/C compressor is available in different versions, depending on version of vehicle. Refer to the ⇒ Electronic Parts Catalog (ETKA). On vehicles with a 2.5L TFSI engine (Audi TT RS), an additional connection point -2 and 4- is installed in the refrigerant lines -1 and 3-. If necessary disconnect the refrigerant lines at these connection locations -2 and 4-. For bolts on the connection points -2 and 4-, the same tightening specifications apply as for the bolts on the refrigerant lines on the inner heat exchanger or on the condenser.*



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On vehicles with a 2.5L TFSI engine (Audi TT RS), the refrigerant line can only be removed from the condenser -1 and 3- when the condenser is removed. If necessary, the refrigerant lines must be disconnected at the respective connection points -2 and 4-.



WARNING

Danger due to refrigerant coming out under pressure.

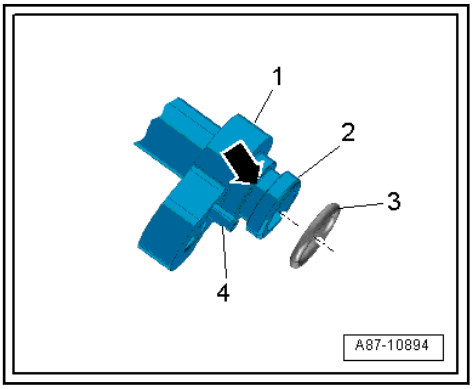
Danger of frost bite to skin and other parts of the body.

- *Evacuate the refrigerant and immediately open the refrigerant circuit afterward.*
- *If more than 10 minutes have elapsed since evacuating the refrigerant and the refrigerant circuit was not opened, evacuate the refrigerant again. Pressure in the refrigerant circuit is caused by evaporation.*

– Remove the bolts -2 and 3- and remove the refrigerant lines -1 and 4-.

– Seal the open lines and connections with clean plugs from the Engine Bung Set -VAS 6122-.

Installing



Install in the reverse order of removal while noting the following:

- Tightening specification. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

– Replace the O-rings. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.

– If equipped, check the alignment pin -4- for damage and proper seating.

– Check the guide ring -2- on the refrigerant line connection for damage.

– Insert the O-ring -3- into the groove -arrow- on the refrigerant line connection -1-.

Note

- *Coat the O-rings with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .*
- *Check the refrigerant pipes leading to the evaporator for contamination and damage.*
- *Make sure the O-rings are seated properly in the groove of the respective refrigerant line.*
- *Routing and securing the refrigerant lines. Refer to ⇒ R4.4 outing and Securing", page 21 .*

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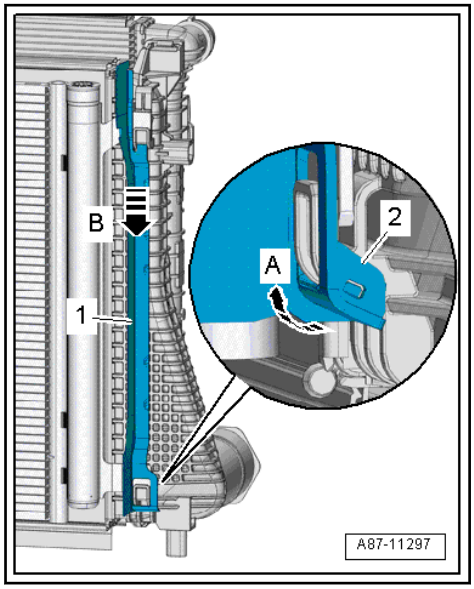
– Evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 .

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

2.8 Condenser, Removing and Installing

Removing



– Disconnect the refrigerant lines from the condenser. Refer to ⇒ L2.7 ines, Disconnecting and Connecting from Condenser", page 122 .

Additional Procedures depending on Engine and Vehicle Version:

Vehicles with TDI Engines:

– Remove the air filter housing. Refer to ⇒ Rep. Gr. 23; Air Filter; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24; Air Filter; Air Filter Housing, Removing and Installing.

– Remove the fan shroud. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

– Remove the radiator. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

– Remove the charge air cooling circuit cooler. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan; Radiator, Removing and Installing.

On vehicles with 4 cylinder TFSI engine:

– Remove the fan shroud. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

– Detach the radiator and tip it as far as possible toward the engine. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

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– Remove the charge air cooler. Refer to ⇒ Engine; Rep. Gr. 21; Charge Air System; Charge Air Cooler, Removing and Installing.

On vehicles with 2.5L TFSI engine:

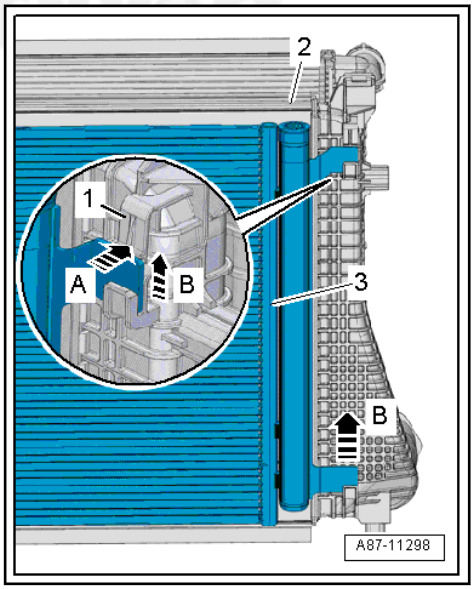
– Remove the radiator. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

Continuation for All Vehicles:

– Release the sealing lip -1- at the bottom from the charge air cooler/charge air cooling circuit cooler -item 2- in the direction of -arrow A- and disengage it at the top in the direction of -arrow B-.

– Have a second technician release the tabs -1- in the direction of -arrow A- and remove the condenser -3- upward out of the mounts on the charge air cooler/charge air cooling circuit cooler -item 2- in the direction of -B arrows-.

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Installing

Install in the reverse order of removal while noting the following:

Note

Radiator and condenser assembly. Refer to ⇒ a4.5 nd Condenser Assembly", page 21 .

– Evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 .

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

2.9 Dryer Cartridge, Removing and Installing

⇒ C2.9.1 artridge, Removing and Installing, Denso Condenser", page 128

⇒ C2.9.2 artridge, Removing and Installing, Modine Condenser", page 131

⇒ C2.9.3 artridge, Removing and Installing, Showa/Keihin Condenser", page 137

2.9.1 Dryer Cartridge, Removing and Installing, Denso Condenser

Note

Certain tools are required to discharge the refrigerant circuit. These work procedures may only be performed by trained personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

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Special tools and workshop equipment required

- Commercially available pick-up tool

Removing

– Discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper (Overview - Front Bumper).

– Remove the air guide from the lock carrier. Refer to ⇒ Rep. Gr. 23; Air Filter; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24; Air Filter; Air Filter Housing, Removing and Installing.

Additional Procedures depending on Engine and Vehicle Version:

Vehicles with TDI Engines:

– Remove the air filter housing. Refer to ⇒ Rep. Gr. 23; Air Filter; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24; Air Filter; Air Filter Housing, Removing and Installing.

Audi TT RS:

– Remove the coolant radiator. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Radiator/Radiator Fan; Radiator, Removing and Installing.

Continuation for all vehicles (except Audi TT RS):

– Remove the fan shroud. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

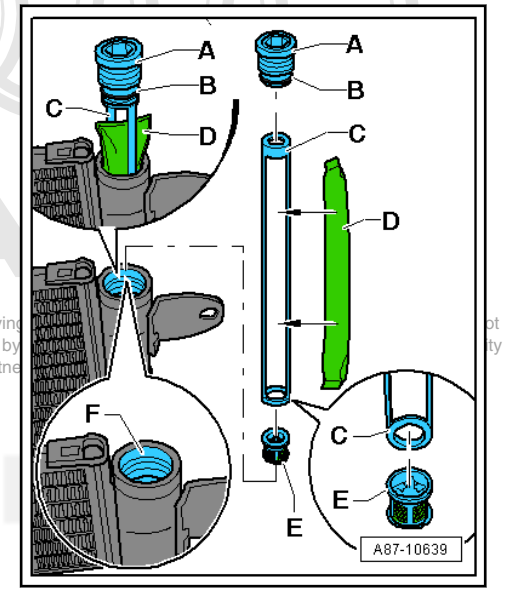
– Loosen the radiator and radiator fan and tip it as much as possible toward the engine. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

Continuation for All Vehicles:

– Check the refrigerant circuit pressure with the pressure gauge on an A/C service station. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Remove the refrigerant lines from the condenser. Refer to ⇒ L2.7 ines, Disconnecting and Connecting from Condenser", page 122 .

– Remove the plug -A-.



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– Remove the dryer carrier -C- with the dryer cartridge -D- upward from the condenser.

– Remove the filter element -E- upward from the condenser using, for example, a pick-up tool.

– Seal the open receiver/dryer with the plug -A- to prevent dirt and moisture from getting in.

Installing

Install in the reverse order of removal while noting the following:

• Tightening specification. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

Note

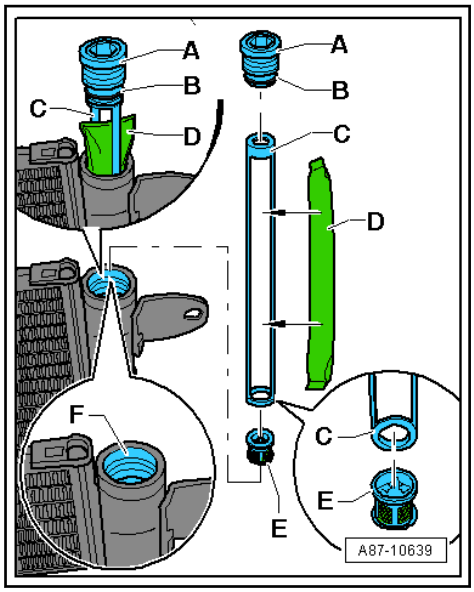
Replace the plug, O-ring and dryer cartridge after every opening of the receiver/dryer. Refer to ⇒ Electronic Parts Catalog (ETKA).

– Using the opening, inspect the receiver/dryer on the condenser for dirt and damage on the threaded- and sealing surfaces.

Note

- *Keep the dryer cartridge sealed in its air-tight package as long as possible. Open the package just before installing the dryer cartridge into the condenser. The dryer cartridge absorbs moisture from the surrounding air in a very short time and becomes unusable.*
- *Coat the O-ring for the plug with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .*

– Insert the filter element -E- into the condenser receiver/dryer on the proper side.



– Remove the dryer cartridge -D- from the package and insert it into the dryer carrier -C-.
– Insert the dryer carrier together with the dryer cartridge into the condenser receiver/dryer.
– Position and install the plug -A-.
– Evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.
– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 .
– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

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2.9.2 Dryer Cartridge, Removing and Installing, Modine Condenser

Note

Certain tools are required to discharge the refrigerant circuit. These work procedures may only be performed by trained personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

Special tools and workshop equipment required

- Dryer Element Plug Socket -T10128- for condenser version "2"

Removing

– Discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper (Overview - Front Bumper).

– Remove the air guide from the lock carrier. Refer to ⇒ Rep. Gr. 23; Air Filter; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24; Air Filter; Air Filter Housing, Removing and Installing.

Additional Procedures depending on Engine and Vehicle Version:

Vehicles with TDI Engines:

– Remove the air filter housing. Refer to ⇒ Rep. Gr. 23; Air Filter; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24; Air Filter; Air Filter Housing, Removing and Installing.

– Remove the charge air cooling circuit cooler. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan; Radiator, Removing and Installing.

Audi TT RS:

– Remove the coolant radiator. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Radiator/Radiator Fan; Radiator, Removing and Installing.

Continuation for all vehicles (except Audi TT RS):

– Remove the fan shroud. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

– Loosen the radiator and radiator fan and tip it as much as possible toward the engine. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

On vehicles with gasoline engines (except Audi TT RS:)

– Remove the charge air cooler. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

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Continuation for All Vehicles:

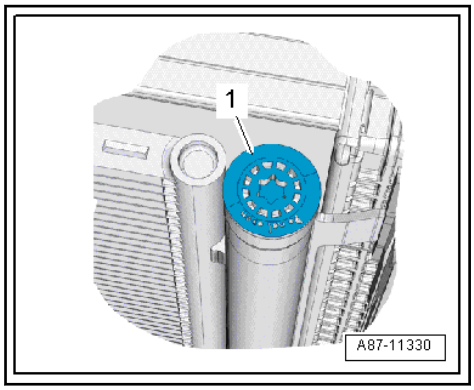
– Check the refrigerant circuit pressure with the pressure gauge on an A/C service station. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refriger-

ant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Remove the refrigerant lines from the condenser. Refer to ⇒ L2.7 ines, Disconnecting and Connecting from Condenser", page 122 .

– Detach the radiator and tilt it as far as possible toward the engine. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Radiator, Removing and Installing).

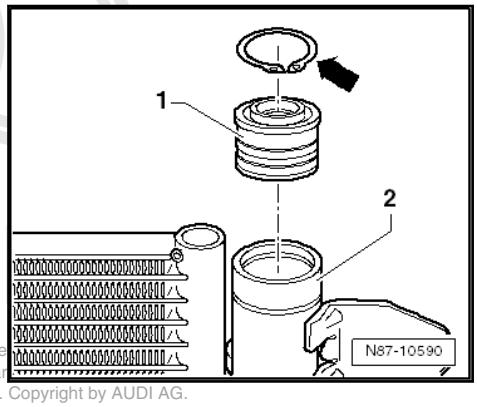
Condenser Version "1":



– Remove the safety warning label (if equipped).

– Remove the closure cap -1-.

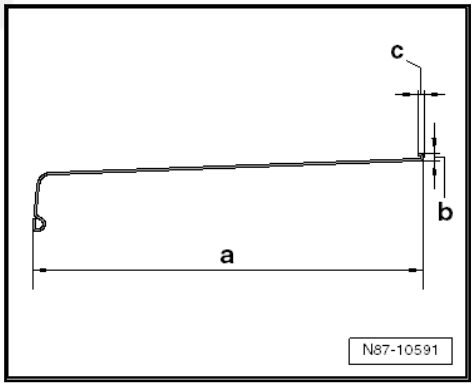
– Push the closure cap -1- in slightly.



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– Remove the circlip -arrow- and then remove the closure cap from the condenser -2- using a M12 bolt.

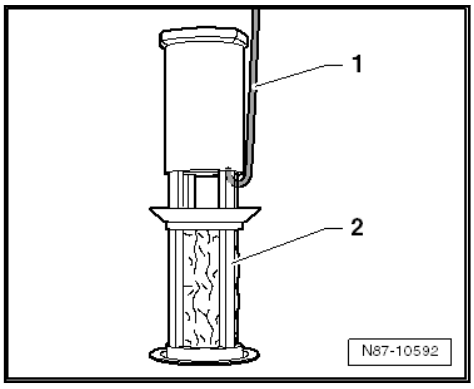
– Make a 2 mm welding wire with the following dimensions.



• Dimension -a- = 380 mm (14.96 in.).

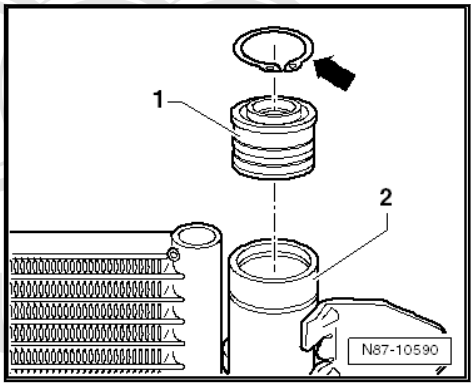
- Dimension -b- = maximum 7 mm (0.28 in.).
- Dimension -c- = maximum 6 mm (0.24 in.).

– Hook the welding wire on the screen exactly as shown to prevent damage to the condenser.



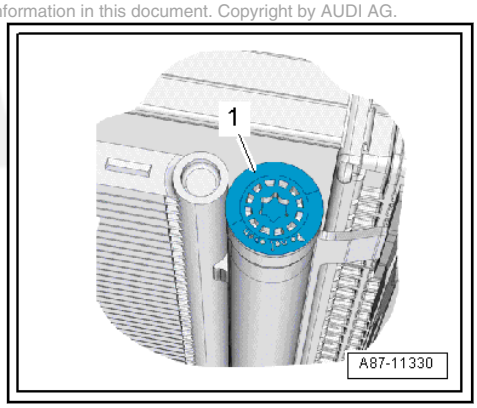
– Carefully remove the filter element (screen) -2- from the receiver/dryer using the welding wire -1-.

– Seal the open receiver/dryer with the closure cap -1- to prevent dirt and moisture from getting in.



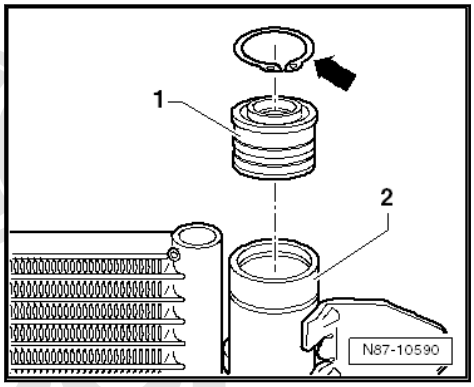
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Condenser Version “2”:



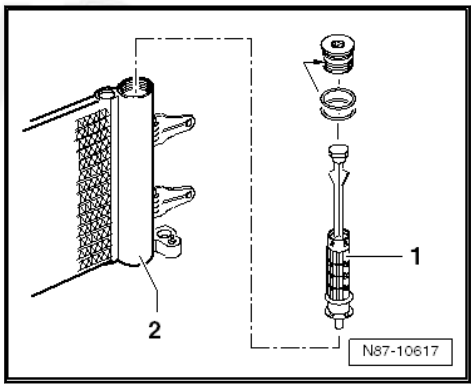
– Remove the protective cap -1- using the Dryer Element Plug Socket -T10128-.

– Push the closure cap -1- in slightly.



– Remove the circlip -arrow- and then remove the closure cap from the condenser -2- using a M12 bolt.
– Remove the dryer unit -1- from the condenser -2- using needle nose pliers.

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– Seal the open receiver/dryer with the closure cap to prevent dirt and moisture from getting in.

Installing

Install in the reverse order of removal while noting the following:

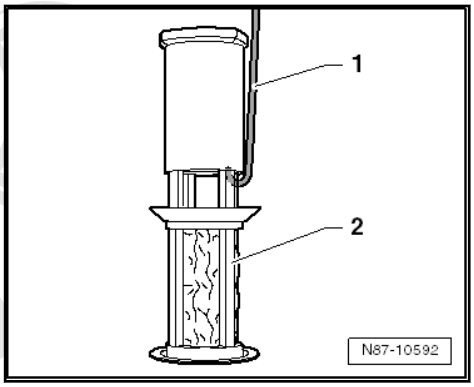
- Tightening specification. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

Note

Replace the plug, O-ring and dryer cartridge after every opening of the receiver/dryer. Refer to ⇒ Electronic Parts Catalog (ET-KA).

– Using the opening, inspect the receiver/dryer on the condenser for dirt and damage on the threaded- and sealing surfaces.

Version “1”:



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– Insert the filter element (with screen) -2- into the condenser receiver/dryer on the proper side.

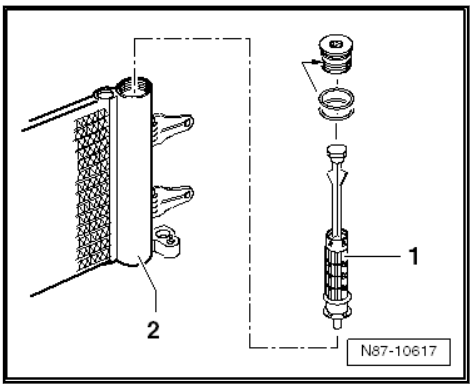
• The filter element must be inserted in up to the stop (over the ridges near the bottom).

Note

Keep the dryer cartridge sealed in its air-tight package as long as possible. Open the package just before installing the dryer cartridge into the condenser. The dryer cartridge absorbs moisture from the surrounding air in a very short time and becomes unusable.

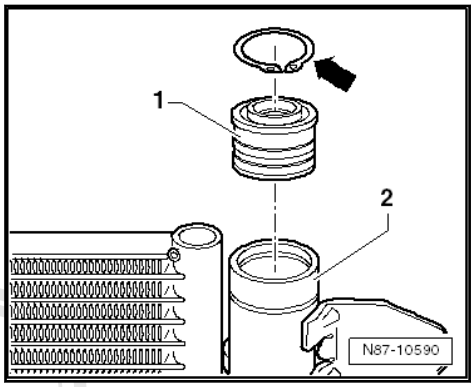
– Remove the dryer cartridge from the package and insert it into the condenser receiver/dryer.

Version “2”:



– Remove the dryer unit -1- from the package and insert it into the condenser -2-.

Continued for all versions:



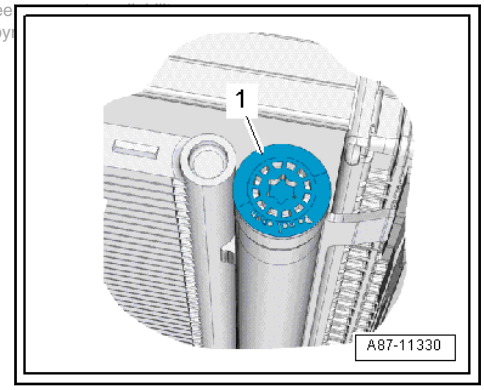
– Insert the closure cap -1- and push it far enough downward so that the snap ring -arrow- can engage in the groove.

Note

Coat the O-ring for the closure cap with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

– Version "1": Press on the protective cap.

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– Version "2": Install the protective cap using the Dryer Element Plug Socket -T10128-.
– Attach the safety warning label (if equipped).
– Evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.
– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 .
– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

2.9.3 Dryer Cartridge, Removing and Installing, Showa/Keihin Condenser

Note

Certain tools are required to discharge the refrigerant circuit. These work procedures may only be performed by trained personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

Special tools and workshop equipment required

- Commercially available pick-up tool

Removing

– Discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper (Overview - Front Bumper).

– Remove the air guide from the lock carrier. Refer to ⇒ Rep. Gr. 23; Air Filter; Air Filter Housing, Removing and Installing (vehicles with a diesel engine) or ⇒ Rep. Gr. 24; Air Filter; Air Filter Housing, Removing and Installing (vehicles with a gasoline engine).

Additional Procedures depending on Engine and Vehicle Version:

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Vehicles with TDI Engines:

– Remove the air filter housing. Refer to ⇒ Rep. Gr. 23; Air Filter; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24; Air Filter; Air Filter Housing, Removing and Installing.

– Remove the charge air cooling circuit cooler. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan; Radiator, Removing and Installing.

Audi TT RS:

– Remove the coolant radiator. Refer to ⇒ Engine Mechanical; Rep. Gr. 19; Radiator/Radiator Fan; Radiator, Removing and Installing.

Continuation for all vehicles (except Audi TT RS):

– Remove the fan shroud. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

– Loosen the radiator and radiator fan and tip it as much as possible toward the engine. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

Continuation for vehicles with gasoline engines:

– Remove the charge air cooler. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Overview - Fan Shroud and Radiator Fan).

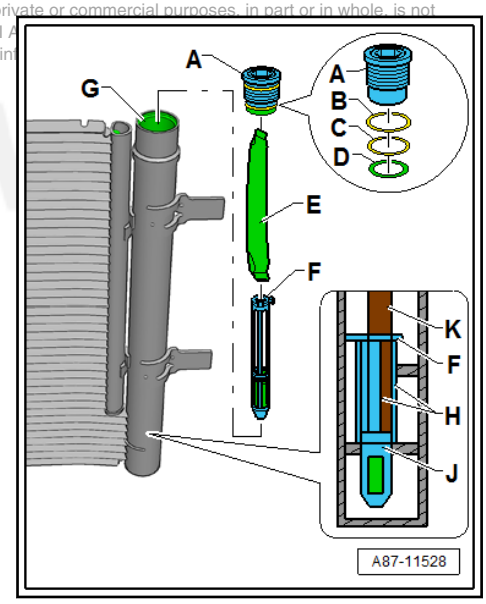
Continuation for All Vehicles:

Note

Depending on the version, the receiver/dryer is either completely replaced or only the dryer cartridge is replaced on the Showa/ Keihin condenser (there are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA)).

- Check the refrigerant circuit pressure with the pressure gauge on an A/C service station. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.
- Remove the refrigerant lines from the condenser. Refer to ⇒ L2.7 ines, Disconnecting and Connecting from Condenser", page 122 .
- Detach the radiator and tilt it as far as possible toward the engine. Refer to ⇒ Rep. Gr. 19; Radiator/Radiator Fan (Radiator, Removing and Installing).

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- Remove the plug -A-.
- Remove the dryer cartridge -E- upward from the condenser receiver/dryer.
- Remove the filter element -F- upward from the condenser receiver/dryer using, for example, a commercially available pick-up tool.
- Seal the open receiver/dryer with the plug -A- to prevent dirt and moisture from getting in.

Installing

Install in reverse order of removal and note the following:

Tightening specification: 2 Nm. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

Note

Replace the plug, O-ring and dryer cartridge after every opening of the receiver/dryer. Refer to ⇒ Electronic Parts Catalog (ETKA).

– Using the opening, inspect the receiver/dryer on the condenser for debris and damage on the thread and the sealing surfaces.

Note

- *Keep the dryer cartridge sealed in its air-tight package as long as possible. Open the package just before installing the dryer cartridge in the receiver/dryer of the condenser. The dryer cartridge absorbs moisture from the surrounding air in a very short time and becomes unusable.*
- *Coat the O-ring for the plug with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .*

– Lightly coat the filter element -F- in the sealing surface area -J- with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

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– Using a suitable tool -K-, insert the filter element -F- on the correct side all the way into the mount in the receiver/dryer. While doing so, do not damage the braces -H-.

– Assemble the plug -A- with the O-ring seals -B and C- and the support ring -D-.

– Remove the dryer cartridge -E- from the package and insert it into the receiver/dryer.

– Position and install the plug -A-.

– All removed parts are reinstalled.

– Evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 .

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

2.10 Refrigerant Lines with Inner Heat Exchanger, Removing and Installing

Note

Certain tools are required to discharge the refrigerant circuit. These work procedures may only be performed by trained personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

Special tools and workshop equipment required

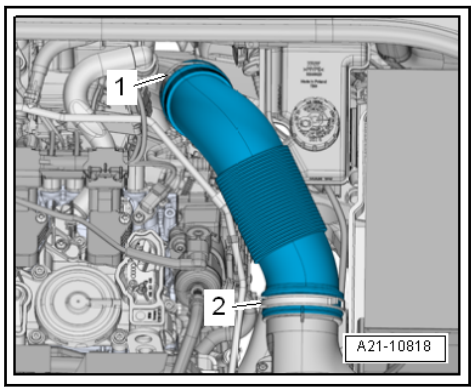
- Engine Bung Set -VAS 6122-

Removing

– Discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

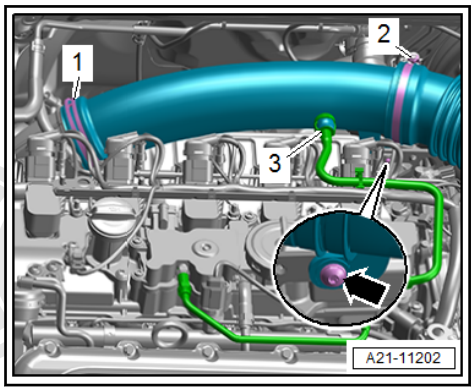
– Remove the engine cover. Refer to ⇒ Rep. Gr. 10; Engine Cover; Engine Cover, Removing and Installing.

Vehicles with 1.8L and 2.0L TFSI engine:



– Loosen the hose clamps -1 and 2- and remove the air duct pipe.

Vehicles with 2.5L TFSI engine:



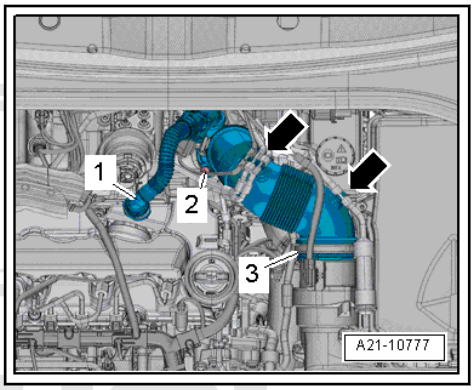
– Disconnect the hose -3- for the crankcase ventilation on the air duct pipe, to do so press the release buttons on both sides.

– Remove the bolt -arrow-.

– Loosen the hose clamps -1 and 2- and remove the air duct pipe.

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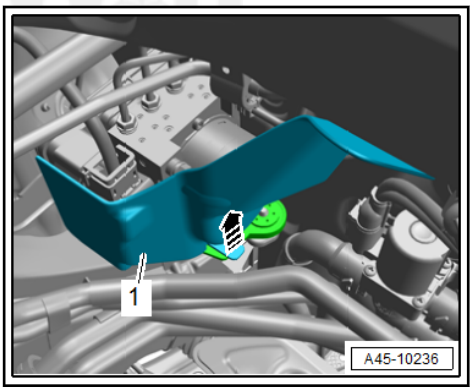
Vehicles with 2.0L TDI engine:



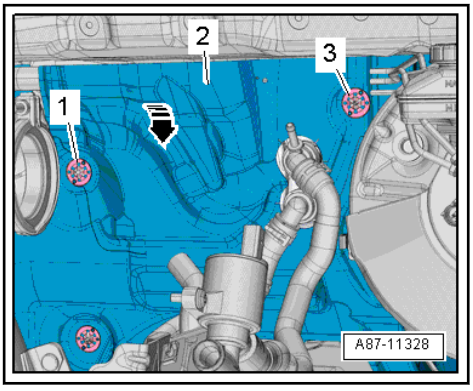
– Press the release buttons on the crankcase ventilation hose -1- and remove the hose from the cylinder head cover.
– Free up the vacuum hose on the air duct pipe -arrows-.
– Loosen the hose clamp -3-.
– Remove the bolt -2-, pivot the air duct pipe with the connection toward the rear and remove it from the turbocharger.

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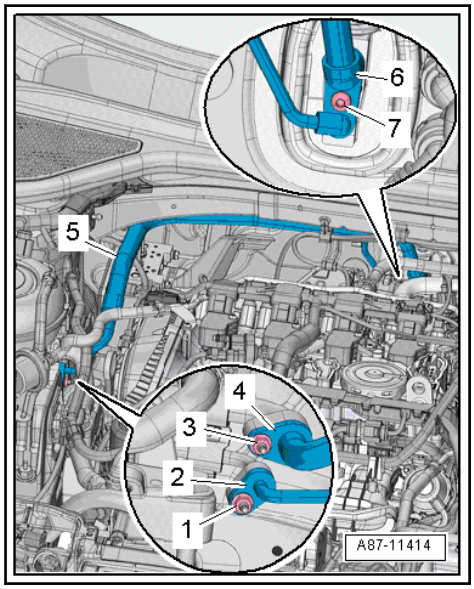
Continuation for All Vehicles:



– If installed, release the catch in the direction of -arrow-, pull the cover -1- off to the left and remove it.
– Unclip the wiring guide.
– Remove the sheet metal nuts -1 and 3-.



– Fold the heat shield -2- as far forward as possible in the direction of -arrow-.



WARNING

Danger due to refrigerant coming out under pressure.

Danger of frost bite to skin and other parts of the body.

- *Evacuate the refrigerant and immediately open the refrigerant circuit afterward.*
- *If more than 10 minutes have elapsed since evacuating the refrigerant and the refrigerant circuit was not opened, evacuate the refrigerant again. Pressure in the refrigerant circuit is caused by evaporation.*

– Remove the bolt -7-.

– Disconnect the refrigerant line -6- with the inner heat exchanger from the expansion valve.

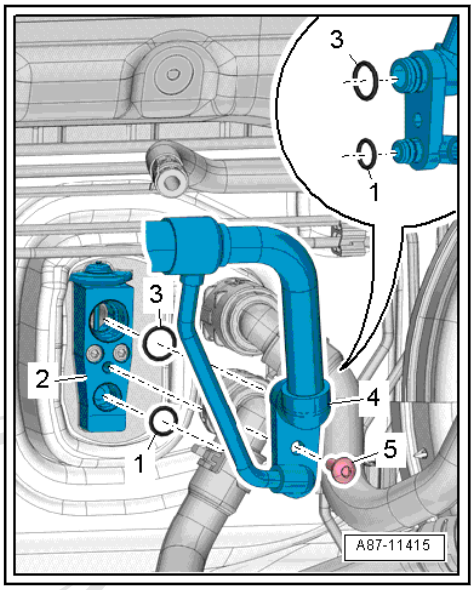
– Remove the nuts -1 and 3- and remove the refrigerant lines -2 and 4-.

– Remove the refrigerant line -5- with the inner heat exchanger to the right.

– Seal the open lines and connections with clean plugs from the Engine Bung Set -VAS 6122-.

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Installing



Install in the reverse order of removal while noting the following:

– Replace the O-rings. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.

– Clean the connections on the expansion valve -2- and on the inner heat exchanger -4- and inspect them for damage.

– Thoroughly clean the refrigerant lines around the connection area and check for damage.

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Note

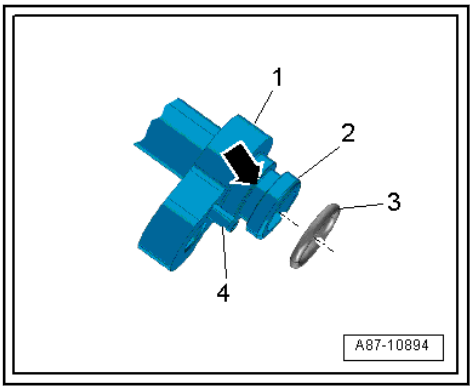
- *Coat the O-rings with refrigerant oil before installing. Refer to ⇒ R5.2 efrigerant Oils and Refrigerant Oil Capacities", page 65 .*
- *Make sure the O-rings are seated properly in the groove of the respective refrigerant line.*

– Insert the O-rings -1 and 3- into the groove on the inner heat exchanger connection.

– Insert the inner heat exchanger on the expansion valve.

– Tighten the bolt -5-.

– Clean the connections on the refrigerant lines and check for damage.



– If equipped, check the alignment pin -4- for damage and proper seating.
– Check the guide ring -2- on the refrigerant line connection for damage.

Note

- *Coat the O-rings with refrigerant oil before installing. Refer to ⇒ R5.2 efrigerant Oils and Refrigerant Oil Capacities", page 65 .*
- *Make sure the O-rings are seated properly in the groove of the respective refrigerant line.*

– Insert the O-ring -3- into the groove -arrow- on the refrigerant line connection -1-.
– Insert the refrigerant lines into their respective connection.
– Tighten the bolts.

Note

Routing and securing the refrigerant lines. Refer to ⇒ R4.4 outing and Securing", page 21 .

– Evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.
– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 .
– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

Tightening Specifications

- Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105
- Refer to ⇒ Rep. Gr. 21; Turbocharger; Overview - Turbocharger.

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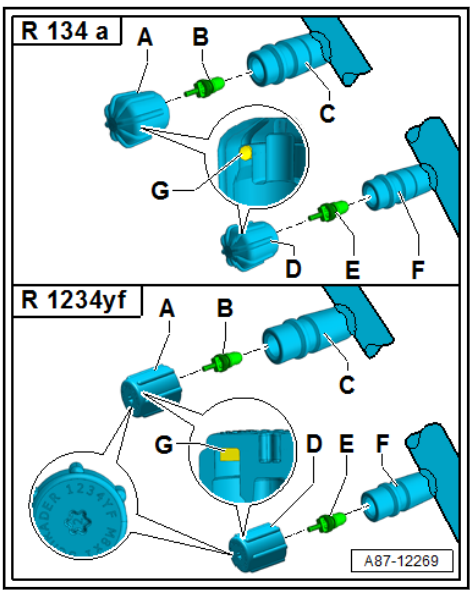
2.11 Service Connection Differences Depending on Refrigerant (R134a or R1234yf)

Note

- *Only use valves and connections that are resistant to the respective refrigerant (R134a and / or R1234yf) and the corresponding refrigerant oil. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The service connections on the refrigerant circuits are designed so that only the service couplings provided for the intended refrigerant (R134a or R1234yf) can be connected.*
- *These illustrations show service connections that have a Schrader valve (needle valve or push pin) installed in them. Depending on the vehicle version, the refrigerant, etc., service connections with a primary sealing valve (ball valve) may also be installed (other technology).*
- *Allocation in the vehicle and on the refrigerant circuit. Refer to ⇒ L1.1 ocation Overview - Components Outside of Vehicle Interior", page 71 and ⇒ O2.1 verview - Refrigerant Circuit", page 101 .*
- *There are different connections (outer diameter) for the high pressure and low pressure sides.*
- *Before removing the valves or valve inserts, discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.*
- *Valve, Removing and Installing at Service Connection on Low and High Pressure Side. Refer to ⇒ C2.12 onnections on Low and High Pressure Side, Removing and Installing", page 148 .*
- *Always install the closure caps with a seal.*

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Service Connections (Refrigerant R134a and R1234yf)



- High pressure side service connection closure cap -A- with seal -G-
- High pressure side valve insert (version: Schrader or needle valve) -B-
- High pressure side service connection -C-
- High pressure side service connection closure cap -D- with seal -G-
- Low pressure side valve insert (version: Schrader or needle valve) -E-
- Low pressure side service connection -F-

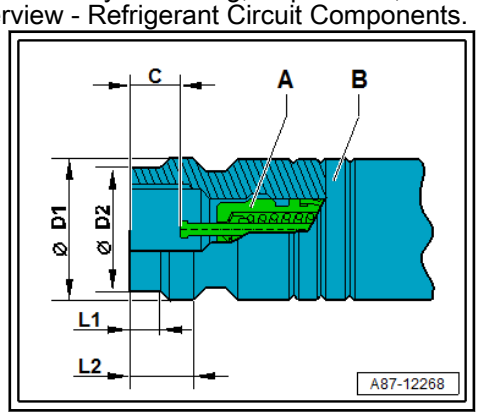
Note

- *Depending on the manufacturer, there are different versions of the service connections -C and F- for refrigerant R134a and refrigerant R1234yf with different closure caps -A and D- and valves -B and E-. Pay attention to the correct allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The closure caps -A and D- for the service connections on the R134a refrigerant circuit are currently black. The closure caps for the service connections on the R1234yf refrigerant circuit are currently gray. The type of refrigerant (such as "R1234yf") may also be imprinted on the closure caps.*
- *After connecting, carefully install the service coupling hand wheel just far enough into the quick-release coupling adapter until the valve -B and E- is securely opened in the service connection (pay attention to the pressure gauge, do not put too much pressure on the valve -B and E-).*
- *The service connections -C and F- on an R134a and R1234yf refrigerant circuit are designed so that only certain service couplings can be connected for each of the refrigerants (different dimensions. Refer to ⇒ page 147).*
- *For example, the service connections -C and F- are soldered into a refrigerant line and therefore cannot be replaced separately.*
- *To remove and install the valves -B and E- (when the refrigerant circuit is discharged), use, for example, an adapter from the Refrigerant Sockets -T10364-. Refer to ⇒ C2.12 onnections on Low and High Pressure Side, Removing and Installing", page 148 .*
- *Due to the low tightening specification, only tighten the valves -B and E- carefully. Refer to ⇒ C2.12 onnections on Low and High Pressure Side, Removing and Installing", page 148 .*
- *There are different versions of these valves, therefore the tightening specifications are different. For a valve insert -C- with a VG5 thread (5.2 x 0.7 mm, tire valve), the tightening specification is 0.4 Nm. +- 0.1 Nm, on a valve insert with a M6 x 0.75 mm thread, the tightening specification is 0.9 Nm +- 0.1 Nm and on a valve insert with a M8 x 1.0 mm thread, the tightening specification is 2.0 Nm +- 0.2 Nm.*
- *There are different versions of these valve caps -A and D-, which means there are different tightening specifications. A valve cap with an M8 x 1mm or M10 x 1mm thread has a tightening specification of 0.4 Nm +- 0.1 Nm.*

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Service Connection Measurements

- Valve insert -A- (different versions). Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Overview - Refrigerant Circuit Components.



- Service connection -B- (depending on the refrigerant, there are different versions on the high- and low-pressure side)

Service Connection Measurements -B-	Refrigerant R134a Service Connection		Refrigerant R1234yf Service Connection	
	High-pressure side	**Low-pressure side**	**High-pressure side**	**Low-pressure side**
Outer diameter -D1-	16.0 mm (0.63 in.)	13.0 mm (0.51 in.)	17.0 mm (0.67 in.)	14.0 mm (0.55 in.)
Outer diameter -D2-	14.0 mm (0.55 in.)	11.0 mm (0.43 in.)	13.0 mm (0.51 in.)	12.0 mm (0.47 in.)
Section -L1-	4.6 mm (0.18 in.)	6.15 mm (0.24 in.)	9.0 mm (0.35 in.)	4.75 mm (0.19 in.)
Section -L2-	8.16 mm (0.32 in.)	9.16 mm (0.36 in.)	12.5 mm (0.49 in.)	7.2 mm (0.28 in.)
Valve installation position (not actuated) -C-	6.1 to 7.1 mm (0.24 to 0.28 in.)	6.1 to 7.1 mm (0.24 to 0.28 in.)	8.3 to 9.3 mm (0.33 to 0.37 in.)	8.3 to 9.3 mm (0.33 to 0.37 in.)

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2.12 Service Connections on Low and High Pressure Side, Removing and Installing

WARNING

Danger due to refrigerant coming out under pressure.

Danger of frost bite to skin and other parts of the body.

- *Evacuate the refrigerant and immediately open the refrigerant circuit afterward.*
- *If more than 10 minutes have elapsed since evacuating the refrigerant and the refrigerant circuit was not opened, evacuate the refrigerant again. Pressure in the refrigerant circuit is caused by evaporation.*

Note

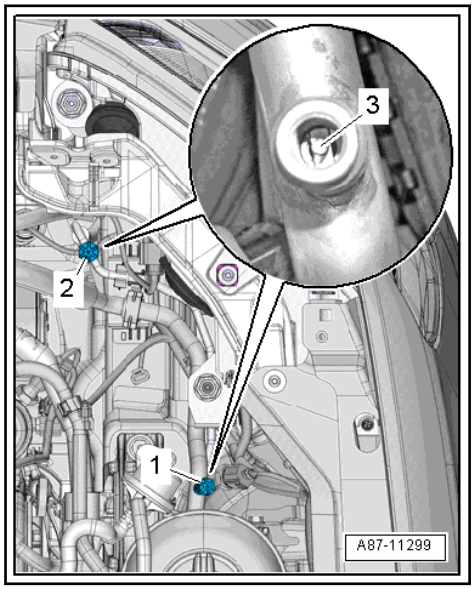
- *Certain tools are required to discharge the refrigerant circuit. These work procedures may only be performed by trained personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 00; Legal Texts and Regulations.*
- *There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ C2.11 onnection Differences Depending on Refrigerant (R134a or R1234yf)", page 145 or ⇒ Electronic Parts Catalog (ETKA).*

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Special tools and workshop equipment required

- Refrigerant Sockets -T10364-

Removing



– Remove the closure caps (with seal) -1- or -2-.

– Discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C

Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

WARNING

Danger due to refrigerant coming out under pressure.

Danger of frost bite to skin and other parts of the body.

- *Evacuate the refrigerant and immediately open the refrigerant circuit afterward.*
- *If more than 10 minutes have elapsed since evacuating the refrigerant and the refrigerant circuit was not opened, evacuate the refrigerant again. Pressure in the refrigerant circuit is caused by evaporation.*

– Remove the service connection -3- using the Refrigerant Sockets -T10364- and a suitable adapter.

Note

Additional information about the service connection. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Overview - Refrigerant Circuit Components.

Installing

Install in the reverse order of removal while noting the following:

– Evacuate and charge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Overview - Refrigerant Circuit Components.

– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150.

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

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2.13 A/C System, Starting after Charging Refrigerant Circuit

⇒ S2.13.1 tarting with Empty Refrigerant Circuit when Necessary", page 150

⇒ f2.13.2 or First Engine Start after Charging Refrigerant Circuit", page 151

2.13.1 Engine, Starting with Empty Refrigerant Circuit when Necessary

Caution

There is a risk of damaging the A/C compressor if the engine runs when the refrigerant circuit is not filled. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station; Refrigerant Circuit, Discharging.

- *The A/C compressor is always driven when the engine is running; there is no A/C clutch. Therefore the engine may only be started when the refrigerant circuit has been properly assembled.*
- *For example, if the refrigerant lines are not connected to A/C compressor, the A/C compressor may heat up so much when the engine is running that the A/C compressor will be damaged by internal heat generation.*
- *If possible, only start the engine when the refrigerant circuit is filled.*
- *Do not start the engine while evacuating the refrigerant circuit or when the refrigerant circuit is evacuated. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.*
- *The engine should not be run for longer than absolutely necessary.*

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Note

The A/C compressor has an "internal oil circuit" to ensure that the A/C compressor is not damaged when the refrigerant circuit is empty. There must be a residual amount of refrigerant oil in the A/C compressor for this.

- The refrigerant circuit must be completely assembled.
- There must be no vacuum in the refrigerant circuit.
- The engine speed must not exceed 2500 rpm.
- The engine should not be run for longer than absolutely necessary (for example, to move the vehicle into the workshop area).
- If the A/C compressor was removed: At least a quarter of the prescribed refrigerant oil amount must be in the A/C compressor.

Note

If only the refrigerant was evacuated (the A/C compressor was not removed), it is guaranteed that there is enough refrigerant oil in the A/C compressor to continue lubricating the A/C compressor for a short operating period due to the design of the refrigerant circuit.

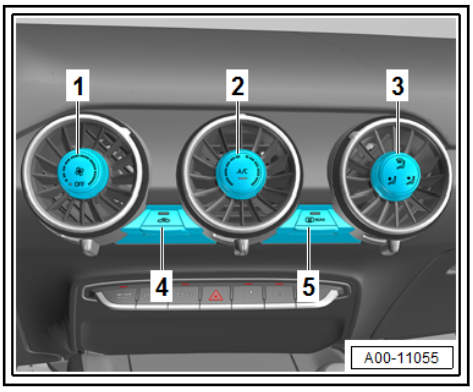
2.13.2 Procedure for First Engine Start after Charging Refrigerant Circuit

- All removed parts are reinstalled.
- The refrigerant circuit is filled. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station; A/C System, Starting after Filling. After recharging, before activating the A/C system.

– Open all instrument panel vents.

– Switch the ignition on.

Vehicles with Manual Climate Control System:



– Adjust the following settings on the A/C system control heads:

Note

This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.

- A/C compressor off: The indicator lamp in the A/C button (in the regulator -2-, Front A/C Display Control Head 3 -E776-) does not come on.
- Recirculating air mode off: The indicator lamp in the Fresh Air and Recirculating Air Mode Button -E781- -4- does not come on.

– Start the engine with the A/C compressor switched off and wait until the engine idle speed has stabilized.

- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “cold” stop.
- A/C compressor on: the indicator lamp in the A/C button (in regulator -2-) illuminates.

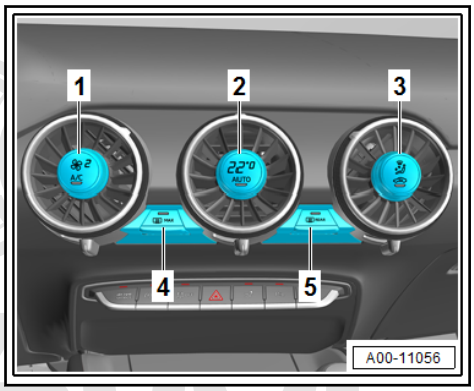
♦ Turn the temperature setting regulator -1- to the “cold” stop.

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- A/C compressor on: the indicator lamp in the AC (or A/C) button -5- turns on:

Vehicles with Automatic Climate Control System:

– Adjust the following settings on the A/C system control heads:



Note

This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.

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- A/C compressor off: The indicator lamp in the A/C button (in regulator -1-) does not come on.
- Recirculating air mode off: the indicator lamp for “recirculating air mode” in the Recirculation button (in the regulator -3-) does not come on.

– Start the engine with the A/C compressor switched off and wait until the engine idle speed has stabilized.

– Adjust the following settings on the A/C system control heads:

- “Auto” mode on: The indicator lamp in the Auto button (in the regulator -2-) illuminates.
- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “cold” stop.
- Turn the regulator -1- (Front A/C Display Control Head 2 -E775-) for the fresh air blower to the maximum speed.
- A/C compressor on: the indicator lamp in the A/C button (in regulator -1-) illuminates.

Continuation for All Vehicles:

– Let the A/C compressor run with the engine in idle for at least five minutes.

Note

Read the information for starting the A/C system after charging. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station; A/C System, Starting after Charging. After recharging, before activating the A/C system.

3 A/C Compressor

⇒ -3.1 A/C Compressor Power Unit", page 153

⇒ -3.2 Belt Pulley", page 158

⇒ C3.3 ompressor, Removing and Installing on Bracket", page 164

⇒ L3.4 ines, Removing and Installing to A/C Compressor", page 169

⇒ C3.5 ompressor, Removing and Installing", page 172

⇒ P3.6 ulley, Removing and Installing", page 176

⇒ P3.7 ulley, Removing and Installing, Delphi/Mahle A/C Compressor", page 178

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3.1 Overview - A/C Compressor Power Unit

⇒ -3.1.1 A/C Compressor Power Unit, 4-Cylinder Engine", page 153

⇒ -3.1.2 A/C Compressor Power Unit, 5-Cylinder Engine (Audi TT RS)", page 156

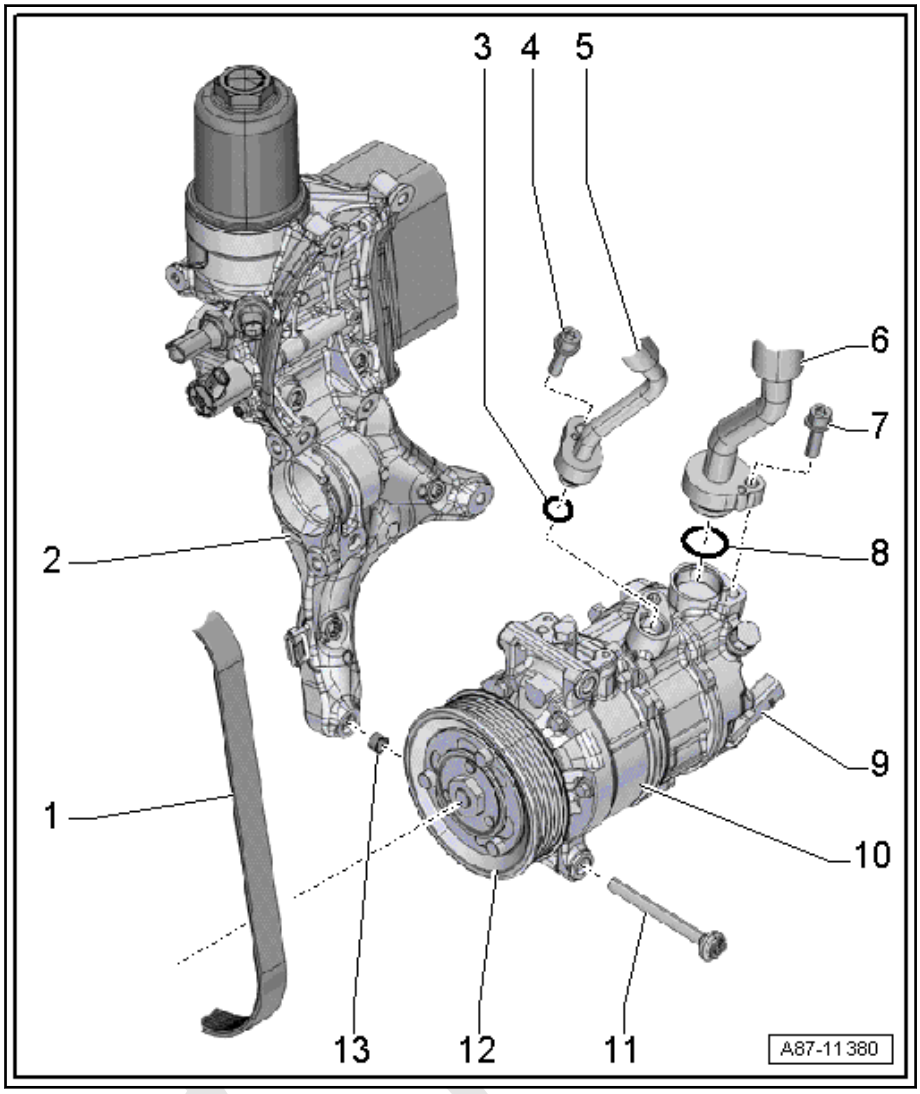
3.1.1 Overview - A/C Compressor Power Unit, 4-Cylinder Engine

1 - Ribbed Belt

- ❑ Check for wear
- ❑ Removing and Installing. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.
- ❑ Mark the running direction and install on the proper side. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

2 - Sub-Assembly Bracket

- ❑ Removing and Installing. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Sub-Assembly Bracket, Removing and Installing.



Note

There are different versions, depending on the engine. Refer to the ⇒ Electronic Parts Catalog (ETKA).

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3 - O-Ring

- ❑ Replace. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.
- ❑ Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

4 - Bolt

- ❑ Tightening specification. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

5 - High Pressure Side Refrigerant Line

6 - Low Pressure Side Refrigerant Line

7 - Bolt

- ❑ Tightening specification. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

8 - O-Ring

- ❑ Replace. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.

- ❑ Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

9 - A/C Compressor Regulator Valve -N280-

- ❑ To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Note

- ♦ *Certain malfunctions at the A/C Compressor Regulator Valve -N280- (for example, a stuck valve or a short circuit in the coil) can lead to a complaint regarding the A/C compressor (A/C system is not cooling, the evaporator ices over, etc.). If the A/C Compressor Regulator Valve -N280- (and not the A/C compressor itself) is the cause, the A/C compressor can be serviced by replacing the A/C Compressor Regulator Valve -N280-. Refer to ⇒ Refrigerant R134a, Servicing; Rep. Gr. 87; Refrigerant Circuit Components, Replacing or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Components, Replacing.*
- ♦ *The A/C Compressor Regulator Valve -N280- is not available as a replacement part for all A/C compressors. If the A/C Compressor Regulator Valve -N280- is not available as an individual A/C compressor part (different versions), then the entire A/C compressor must be replaced if there is a complaint. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

10 - A/C Compressor

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Refrigerant Line, Disconnecting and Connecting. Refer to ⇒ L3.4 ines, Removing and Installing to A/C Compressor", page 169 .
- ❑ Removing and installing from the bracket. Refer to ⇒ C3.3 ompressor, Removing and Installing on Bracket", page 164 .
- ❑ Removing and Installing. Refer to ⇒ C3.3 ompressor, Removing and Installing on Bracket", page 164 .

Note

There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ Electronic Parts Catalog (ETKA).

11 - Bolt

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- ❑ Quantity: 3
- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Tightening specification for steel bolts: 25 Nm
- ❑ Tightening specification for aluminum bolts: 8 Nm +180°
- ❑ Only use aluminum bolts once, then replace.

12 - Belt Pulley with Overload Protection

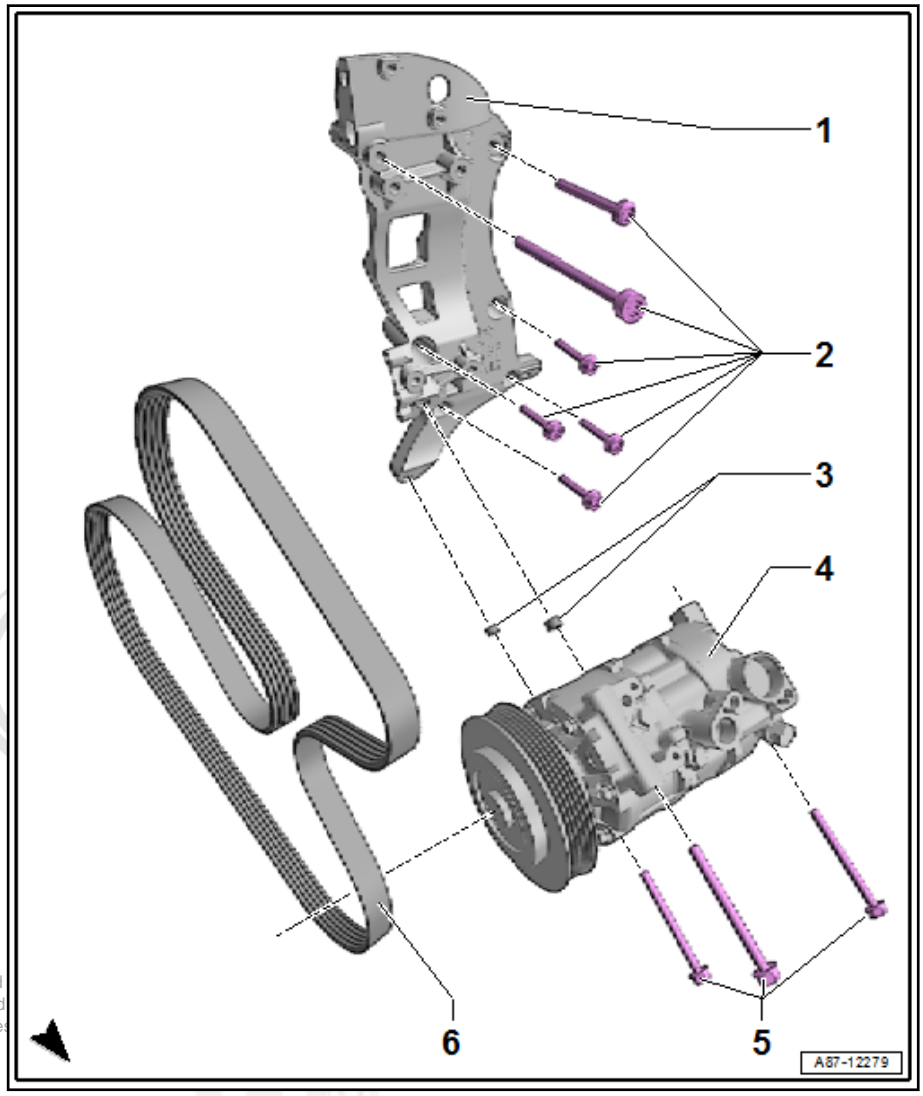
- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Overview. Refer to ⇒ -3.2 Belt Pulley", page 158 .

13 - Alignment Sleeve

- ❑ Quantity: 2

3.1.2 Overview - A/C Compressor Power Unit, 5-Cylinder Engine (Audi TT RS)

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1 - Sub-Assembly Bracket

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Sub-Assembly Bracket, Removing and Installing.

2 - Bolts

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Sub-Assembly Bracket, Removing and Installing.

3 - Alignment Sleeves

- ❑ Quantity: 2
- ❑ Be careful to use the correct version and make sure the subassembly bracket and A/C compressor fit correctly.

4 - A/C Compressor

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Refrigerant Line, Disconnecting and Connecting. Refer to ⇒ L3.4 ines, Removing and Installing to A/C Compressor", page 169 .
- ❑ Removing and installing from the bracket. Refer to ⇒ C3.3.2 ompressor, Removing and Installing at Bracket, 5-Cylinder Engine (Audi TT RS)", page 166 .
- ❑ Removing and Installing. Refer to ⇒ C3.3 ompressor, Removing and Installing on Bracket", page 164 .

Note

There are different versions depending on the refrigerant (R134a or R1234yf). Refer to ⇒ Electronic Parts Catalog (ETKA).

5 - Bolts

- ❑ Quantity: 3
- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Tightening specification for steel bolts: 25 Nm
- ❑ Tightening specification for aluminum bolts: 8 Nm +180°
- ❑ Only use aluminum bolts once, then replace.

6 - Ribbed Belt

- ❑ Check for wear
- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).

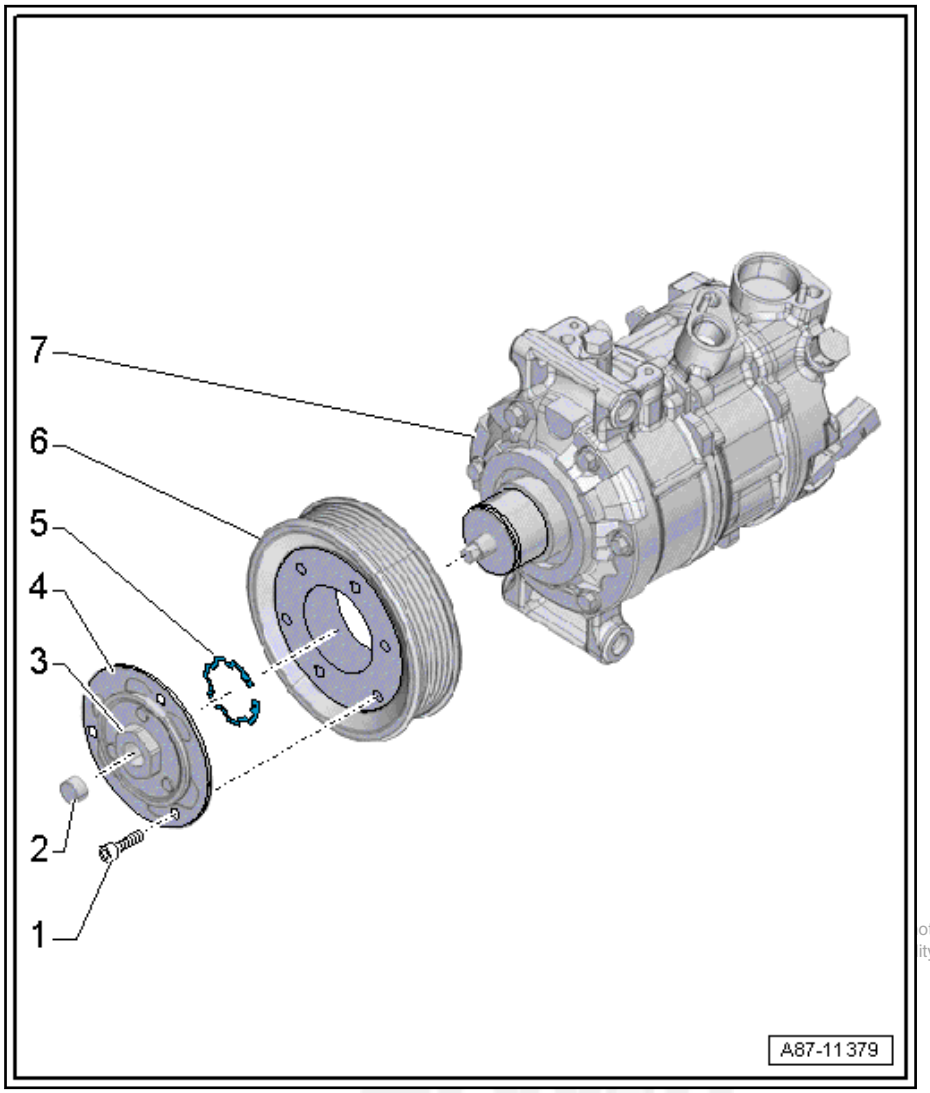
- ❑ Removing and Installing. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.
- ❑ Mark the running direction and install on the proper side. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

3.2 Overview - Belt Pulley

⇒ -3.2.1 Belt Pulley, Denso A/C Compressor", page 158

⇒ -3.2.2 Belt Pulley, Sanden (Delphi/Mahle) A/C Compressor", page 159

3.2.1 Overview - Belt Pulley, Denso A/C Compressor



1 - Bolt

- ❑ Quantity: 3
- ❑ 4.5 Nm

2 - Closure Cap

3 - Nut

- ❑ 25 Nm

4 - Drive Plate

- ❑ With overload protection; is activated when the torque is too great (for example, if the A/C compressor runs with resistance) and the belt pulley runs freely without driving the A/C compressor.

5 - Circlip

- ❑ Replace
- ❑ Install on the proper side - the flat side faces the A/C compressor

6 - Belt Pulley

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Is sensitive to impact, be careful when handling
- ❑ Removing and Installing. Refer to ⇒ P3.6.1 ulley, Removing and Installing, Denso A/C Compressor", page 176 .

7 - A/C Compressor

- ❑ Clean the A/C compressor input shaft before installing the belt pulley

3.2.2 Overview - Belt Pulley, Sanden (“Delphi/Mahle”) A/C Compressor

Note

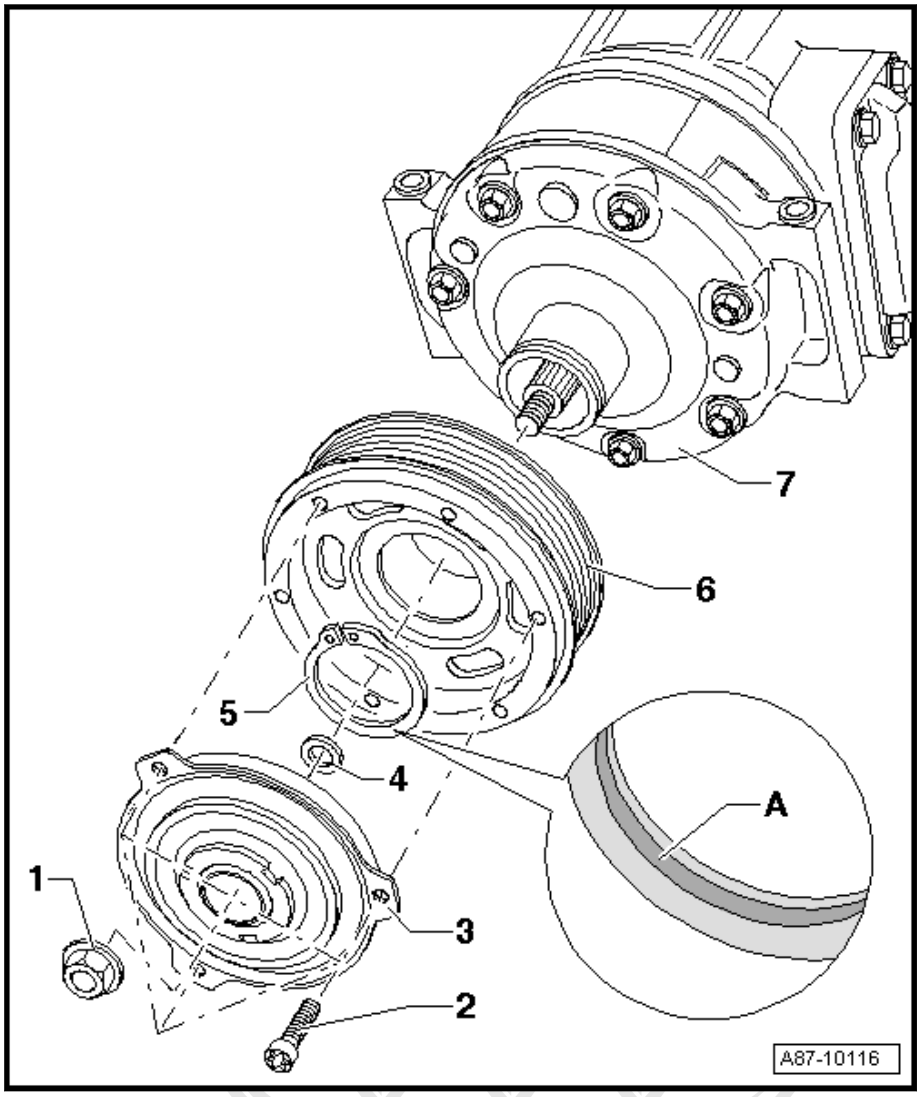
- *If the belt pulley overload protection is triggered, check the A/C compressor for ease of movement before replacing the belt pulley. If the A/C compressor creates friction, replace it completely.*
- *The function of overload protection for pulley is described in, for example, the ⇒ Self Study Program No. 240; Audi A2 Technical Information.*
- *The A/C compressor can be removed and installed at the bracket on engine without opening the refrigerant lines.*
- *The belt pulley on the “Delphi/Mahle” A/C compressor version “1” is currently identical in construction to the belt pulley on the “Sanden” A/C compressor, version “2”. However, the drive plate is secured with a self-locking bolt ⇒ Item 2 (page 162) to the A/C compressor shaft.*
- *Removing and reinstalling the belt pulley on the “Delphi/Mahle” A/C compressor version “2”. Refer to ⇒ P3.7 ulley, Removing and Installing, Delphi/Mahle A/C Compressor”, page 178 .*

Belt pulley version “1”

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1 - Nut

- ❑ 25 Nm
- – To loosen and tighten hex nut, hold the belt pulley firmly in place using a commercially available strap wrench (with cloth tape).
- – The thread of the nut, which was installed with locking compound, must be cleaned (for example, using a thread tap). Otherwise, there is a risk that the input shaft will break off during assembly.
- – Clean the threads of the A/C compressor input shaft with a wire brush.
- – Insert the nut with locking compound. Locking fluid. Refer to the ⇒ Electronic Parts Catalog (ETKA).



2 - Bolt

- ❑ 4.5 Nm
- – Hold the belt pulley securely with a commercially available strap wrench (with cloth tape) to loosen and tighten the bolts.
- – The threaded bolt holes, into which the self-locking bolts or bolts with locking compound were installed, must be cleaned (for example with a thread tap). Otherwise there is the risk that the bolts could break off when they are removed again.
- – Clean the threads of the bolts that were installed with locking fluid using a wire brush. Then insert the bolts with locking fluid. Locking fluid. Refer to the ⇒ Electronic Parts Catalog (ETKA).

3 - Drive Plate

- ❑ With overload protection; is activated when the torque is too great (for example, if the A/C compressor runs with resistance) and the belt pulley runs freely without driving the A/C compressor.
- ❑ With a rubber element for decoupling the belt pulley from the A/C compressor input shaft, the rubber element dampens vibrations and noises.

4 - Washer

5 - Circlip

- ❑ Replace
- ❑ Install on the proper side, beveled insertion edge -A- faces away from the A/C compressor; flat side faces the A/C compressor

6 - Belt Pulley

7 - A/C Compressor

- ❑ Clean the A/C compressor input shaft before installing the belt pulley

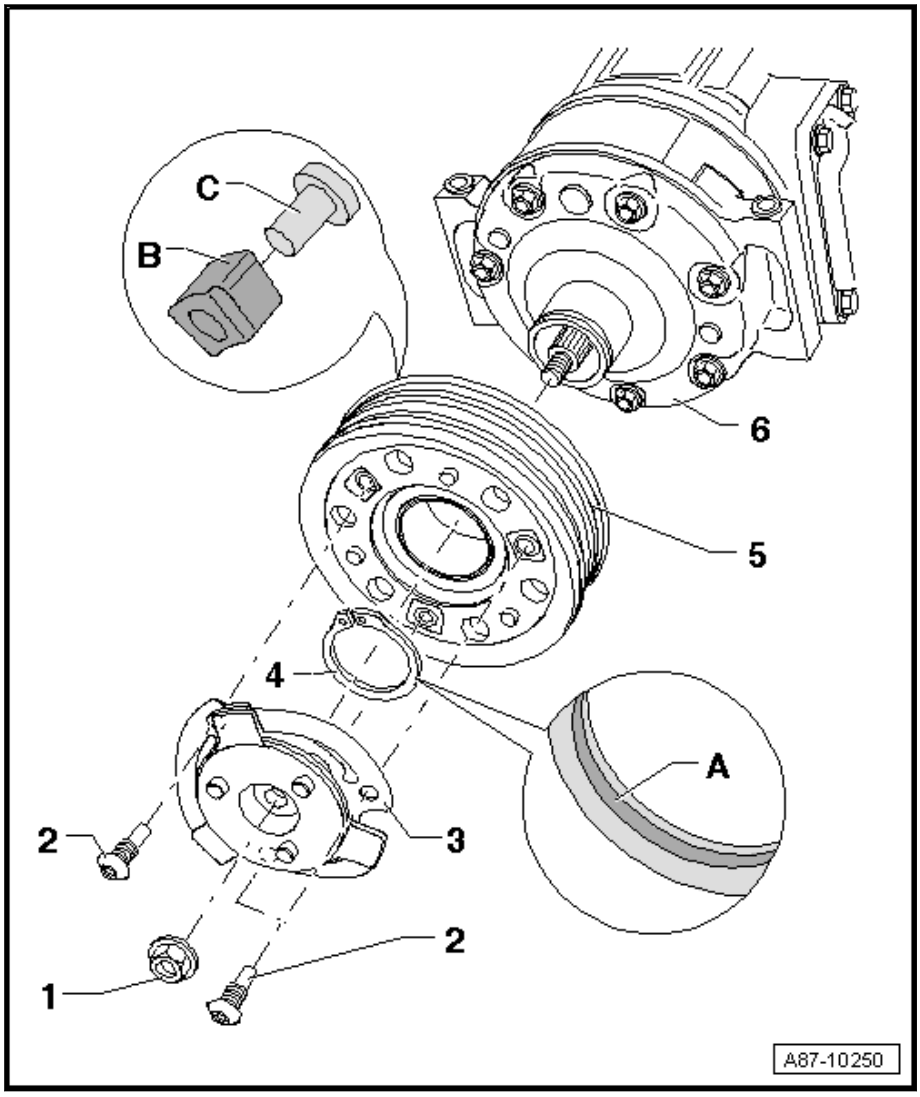
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Belt pulley version “2”

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1 - Nut

- ❑ 25 Nm



Note

To protect the A/C compressor input shaft threads, they may be covered with a plastic cap (the plastic cap is not illustrated).

– Hold the belt pulley securely with a commercially available oil filter band wrench to loosen and tighten the hex nut.

– The threads of the nut that was installed with locking fluid must be cleaned (for example, using a thread tap). Otherwise, there is a risk that the input shaft will break off during assembly.

– Clean the threads of the A/C compressor input shaft with a wire brush.

– Insert the nut with locking compound. Locking fluid. Refer to the ⇒ Electronic Parts Catalog (ETKA).

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2 - Bolt

- ❑ 12 Nm

– Hold the belt pulley securely with a commercially available oil filter band wrench to loosen and tighten the bolts.

– The threaded holes into which the self-locking bolts or bolts with locking fluid are installed must be cleaned (for example with a thread tap). Otherwise there is the risk that the bolts could break off when they are removed again.

– Clean the threads of the bolts that were installed with locking fluid using a wire brush. Then insert the bolts with locking fluid. Locking fluid. Refer to the ⇒ Electronic Parts Catalog (ETKA).

3 - Drive Plate

- ❑ With overload protection (securing spring elements); is activated when the torque is too great (for example, if the A/C compressor runs with resistance) and the belt pulley runs freely without driving the A/C compressor.
- ❑ The drive plate spring elements dampen vibrations and noise

4 - Circlip

- ❑ Replace
- ❑ Install on the proper side, beveled insertion edge -A- faces away from the A/C compressor; flat side faces the A/C compressor

5 - Belt Pulley

- ❑ With rubber elements -B- and threaded plates -C- for decoupling the belt pulley from A/C compressor input shaft, dampens vibrations and noises

Note

- ♦ *The threaded plates can also be connected to each other by a ring, depending on the version.*
- ♦ *For "cold climate" vehicles (for example, central and north Europe), A/C compressors with a smaller displacement may be installed. On these A/C compressors, the belt pulley is slightly different from the version illustrated here (the rubber elements -B- are, for example, not present). Refer to ⇒ Electronic Parts Catalog (ETKA).*

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6 - A/C Compressor

- ❑ Clean the A/C compressor input shaft before installing the belt pulley

3.3 A/C Compressor, Removing and Installing on Bracket

⇒ C3.3.1 ompressor, Removing and Installing from Bracket, 4-Cylinder Engine", page 164

⇒ C3.3.2 ompressor, Removing and Installing at Bracket, 5-Cylinder Engine (Audi TT RS)", page 166

3.3.1 A/C Compressor, Removing and Installing from Bracket, 4-Cylinder Engine

Note

- *The A/C compressor can be removed from the subassembly bracket and installed again without opening the refrigerant lines.*
- *The subassembly bracket for the A/C compressor and its parts can be removed and installed without having to open the refrigerant line.*
- *Routing for both ribbed belts. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.*
- *Do not discharge the refrigerant circuit, do not remove refrigerant hoses and lines from the A/C compressor.*
- *Do not loosen the refrigerant lines and corresponding clamps.*
- *After removing the A/C compressor, tie it to the vehicle using for example a wire. Do not let it hang by the refrigerant lines.*
- *Before removing, mark direction of operation of ribbed belt with chalk or felt-tipped pen. Running a used belt in the opposite direction could destroy it.*
- *Different A/C compressors may be installed depending on engine and country variant. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

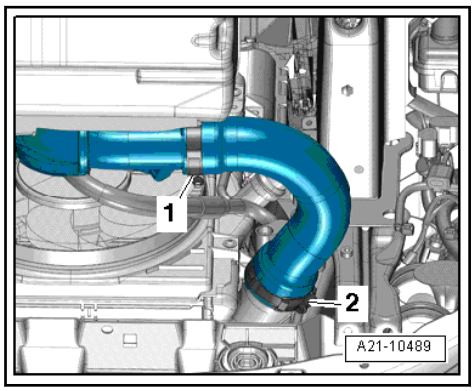
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Special tools and workshop equipment required

- Engine Bung Set -VAS 6122-

Removing

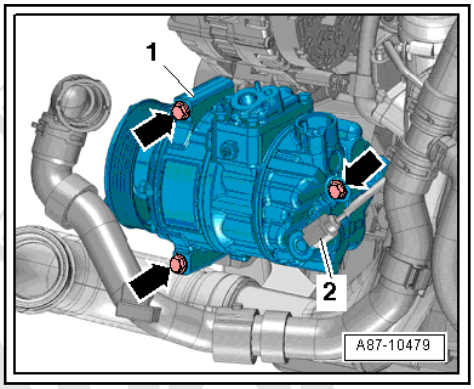
– Remove the center noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation, Removing and Installing.



– Vehicles with TDI engine: Loosen the hose clamps -1 and 2- and remove the air duct hose.

– Seal the open lines and connections with clean plugs from the Engine Bung Set -VAS 6122-.

– Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.



– Disconnect the connector -2- from the A/C Compressor Regulator Valve -N280-.

– Remove the bolts -arrows- and remove the A/C compressor -1-.

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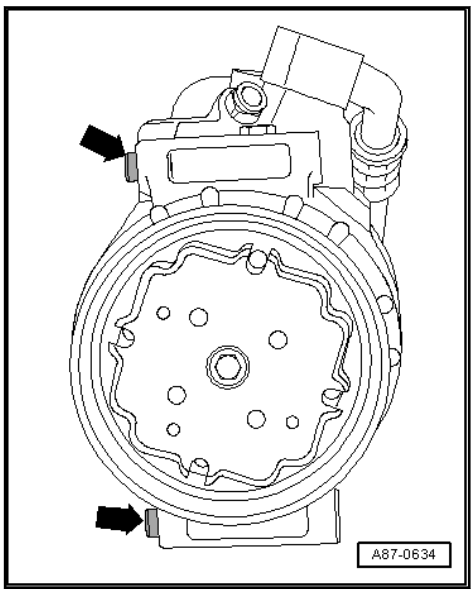
Caution

Risk of damaging the refrigerant lines and hoses.

- *Do not bend, twist or stretch the refrigerant lines and hoses.*

– Hang the A/C compressor on the lock carrier with wire.

Installing



Install in the reverse order of removal while noting the following:

- Tightening specification. Refer to ⇒ -3.1 A/C Compressor Power Unit", page 153 .

– Thoroughly clean the contact surfaces on the A/C compressor and bracket.

– Insert the alignment sleeves -arrows- into the A/C compressor.

Note

Make sure the alignment sleeves are seated correctly and the contact surfaces are clean. Incorrectly installed alignment sleeves and dirty or damaged contact surfaces can cause alignment irregularities between the A/C compressor and engine. Alignment irregularities over operating time lead to damage to the A/C compressor or belt drive.

3.3.2 A/C Compressor, Removing and Installing at Bracket, 5-Cylinder Engine (Audi TT RS)

Note

- *The A/C compressor can be removed from the subassembly bracket and installed again without opening the refrigerant lines.*
- *The subassembly bracket for the A/C compressor and its parts can be removed and installed without having to open the refrigerant line.*
- *Routing for both ribbed belts. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.*
- *The removal and installation on a “Denso” A/C compressor is described in the following.*
- *Do not discharge the refrigerant circuit, do not remove refrigerant hoses and lines from the A/C compressor.*
- *Do not loosen the refrigerant lines and corresponding clamps.*
- *After removing the A/C compressor, tie it to the vehicle using for example a wire. Do not let it hang by the refrigerant lines.*
- *Before removing, mark direction of operation of ribbed belt with chalk or felt-tipped pen. Running a used belt in the opposite direction could destroy it.*
- *Different A/C compressors may be installed depending on engine and country variant. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

Special tools and workshop equipment required

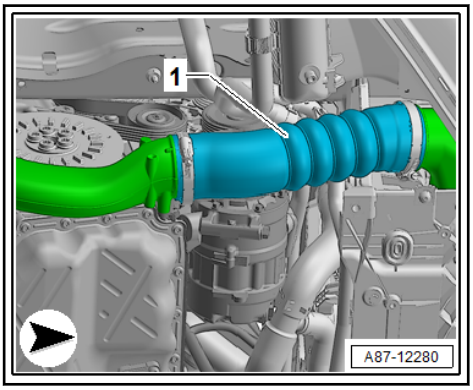
- Engine Bung Set -VAS 6122-

Removing

– Remove the center noise insulation and the right wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation; Noise Insulation, Removing and Installing.

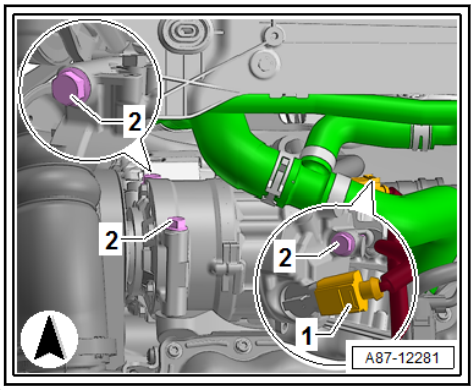
– Remove the air duct hose -1- to the right air duct pipe. Refer to ⇒ Rep. Gr. 21; Charge Air System; Overview - Charge Air System.

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– Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

– Disconnect the connector -1- from the A/C Compressor Regulator Valve -N280-.



– Remove the bolts -2-.

Caution

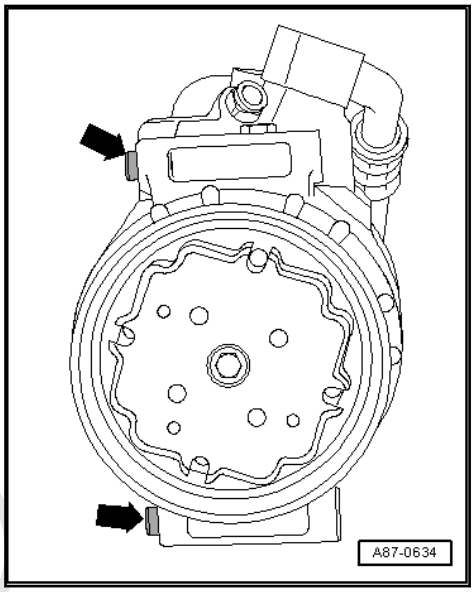
Risk of damaging the refrigerant lines and hoses.

- ***Do not bend, twist or stretch the refrigerant lines and hoses.***

– Remove the A/C compressor and tie it up for example with a wire.

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Installing



Install in reverse order of removal while noting the following:

– Clean the contact surfaces on the A/C compressor thoroughly.

– Insert the alignment sleeves -arrows- into the A/C compressor.

– After installing the A/C compressor, refrigerant lines and related brackets, make sure that there is a sufficient distance between the belt, bracket and belt pulley.

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Note

Make sure the alignment sleeves are seated correctly and the contact surfaces are clean. Incorrectly installed alignment sleeves and dirty or damaged contact surfaces can cause alignment irregularities between the A/C compressor and engine. Alignment irregularities over operating time lead to damage to the A/C compressor or ribbed belt.

– Install the ribbed belt. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

– Install the right air guide pipe. Refer to ⇒ Rep. Gr. 21; Overview - Charge Air System.

Tightening Specifications

♦ Refer to ⇒ -3.1.2 A/C Compressor Power Unit, 5-Cylinder Engine (Audi TT RS)", page 156

3.4 Refrigerant Lines, Removing and Installing to A/C Compressor

Note

- *Certain tools are required to discharge the refrigerant circuit. These work procedures may only be performed by trained personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.*
- *An additional weight (balance weight, resonator in the refrigerant line to reduce noise) may be present on the refrigerant line on the low pressure side depending on the refrigerant line version and the production period. Refer to ⇒ W2.5 eight on Refrigerant Line", page 120 . Make sure that this component is not touching or can come in contact with other components during operation (noise). Refer to the ⇒ Electronic Parts Catalog (ETKA).*

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Special tools and workshop equipment required

- Door Adjusting Wrench - Joint -3320/1-
- Engine Bung Set -VAS 6122-

Removing

– Discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Remove the air guide from the lock carrier. Refer to ⇒ Rep. Gr. 23; Air Filter; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24; Air Filter; Air Filter Housing, Removing and Installing.

Caution

Risk of damaging the refrigerant lines and hoses.

- ***Do not bend, twist or stretch the refrigerant lines and hoses.***

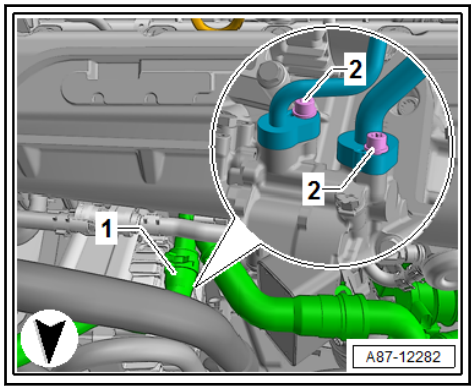
– If necessary, remove the front noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66; Noise Insulation.

Note

Not necessary on vehicles on which the refrigerant lines are accessible from above.

Continuation for Audi TT RS:

– If necessary, loosen the coolant hoses -1- from the bracket and carefully push toward the rear.



WARNING

Danger due to refrigerant coming out under pressure.

Danger of frost bite to skin and other parts of the body.

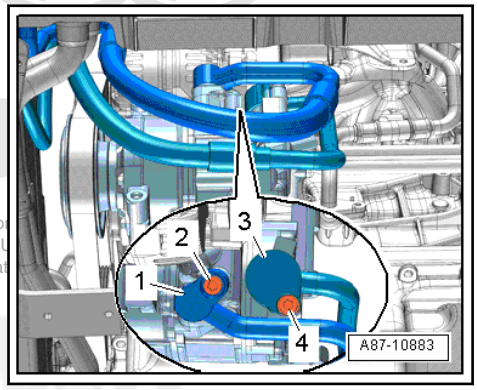
- *Evacuate the refrigerant and immediately open the refrigerant circuit afterward.*
- *If more than 10 minutes have elapsed since evacuating the refrigerant and the refrigerant circuit was not opened, evacuate the refrigerant again. Pressure in the refrigerant circuit is caused by evaporation.*

– Remove the bolts -2- (for example using the Door Adjusting Wrench - Joint - 3320/1-).

– Remove the refrigerant lines.

Continuation for all vehicles (except TT RS):

– Remove the bolts -2 and 4- using the Door Adjusting Wrench - Joint -3320/1- and remove the refrigerant lines -1 and 3-.



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Continuation for All Vehicles:

– Seal the open lines and connections with clean plugs from the Engine Bung Set -VAS 6122-.

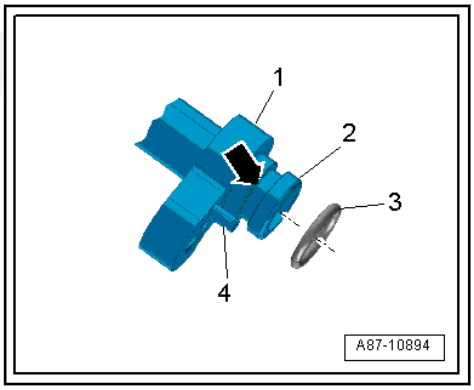
Caution

Risk of destroying the A/C compressor.

- *The A/C compressor is always driven when the engine is running; there is no A/C clutch. Therefore the engine may only be started when the refrigerant circuit has been properly assembled.*
- *For example, if the refrigerant lines are not connected to A/C compressor and the connections are sealed, the A/C compressor may heat up so much when the engine is running that the A/C compressor will be destroyed by internal heat generation.*

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Installing



Install in the reverse order of removal while noting the following:

- Tightening specification. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

– Replace the O-rings. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.

– If equipped, check the alignment pin -4- for damage and proper seating.

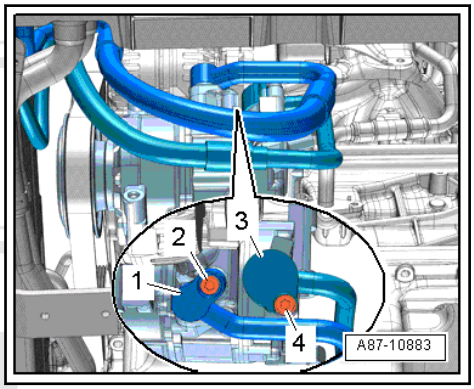
– Check the guide ring -2- on the refrigerant line connection for damage.

– Insert the O-ring -3- into the groove -arrow- on the refrigerant line connection -1-.

Note

- *Do not use the O-rings from the closure caps for the replacement A/C compressor connections.*
- *Coat the O-rings with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .*
- *Make sure the O-rings are seated properly in the groove of the respective refrigerant line.*
- *Routing and securing the refrigerant lines. Refer to ⇒ R4.4 outing and Securing", page 21 .*

– Insert the refrigerant lines -1 and 3- into the respective connection on the A/C compressor.



– Tighten the bolts -2 and 4- using the Door Adjusting Wrench - Joint -3320/1-.

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– Evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 .

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

3.5 A/C Compressor, Removing and Installing

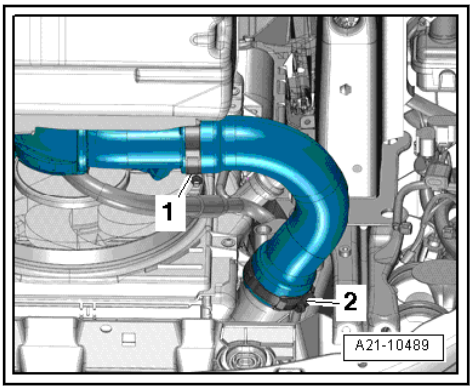
Note

- *Certain tools are required to discharge the refrigerant circuit. These work procedures may only be performed by trained personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.*
- *The following shows the A/C compressor on a vehicle with a 4-cylinder engine. On vehicles with a 5-cylinder engine (Audi TT RS) the layout of the components is different however the removing and installing of the A/C compressor is performed in the same way.*

Special tools and workshop equipment required

- Engine Bung Set -VAS 6122-

Removing

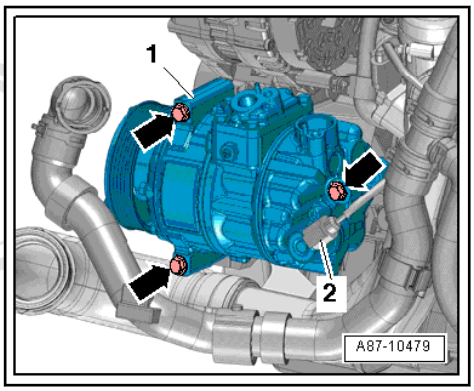


– Remove the refrigerant lines from the A/C compressor. Refer to ⇒ L3.4 ines, Removing and Installing to A/C Compressor", page 169 .

– Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

– Seal the open lines and connections with clean plugs from the Engine Bung Set -VAS 6122-.

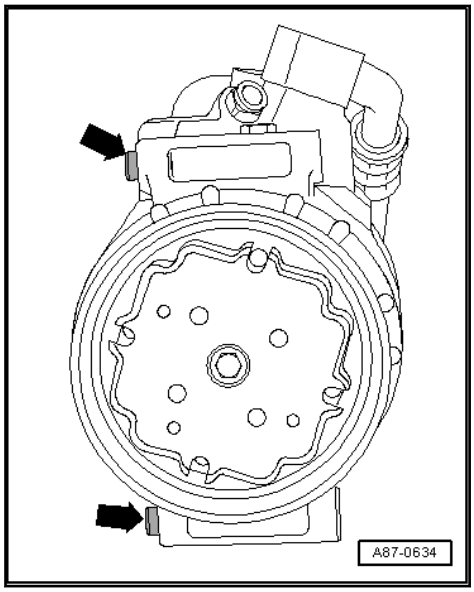
– Remove the A/C compressor from the bracket. Refer to ⇒ C3.3 ompressor, Removing and Installing on Bracket", page 164 .



– Remove the A/C compressor -1-.

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Installing



Install in the reverse order of removal while noting the following:

- Tightening specification. Refer to ⇒ -3.1 A/C Compressor Power Unit", page 153 .

– Thoroughly clean the contact surfaces on the A/C compressor and bracket.

– Insert the alignment sleeves -arrows- into the A/C compressor.

Note

- *Make sure the alignment sleeves are seated correctly and the contact surfaces are clean. Incorrectly installed alignment sleeves and dirty or damaged contact surfaces can cause alignment irregularities between the A/C compressor and engine. Alignment irregularities over operating time cause damage to the A/C compressor.*
- *If the A/C compressor is replaced due to certain complaints (for example, internal damage), the refrigerant circuit must be cleaned. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Refrigerant Circuit, Flushing.*
- *There is an unspecified amount of refrigerant oil in the removed A/C compressor. Therefore observe the information on replacing the A/C compressor. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit Components, Replacing or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Refrigerant Circuit; Components, Replacing.*

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Caution

Risk of damaging the A/C compressor.

- *Refrigerant oil may accumulate in the compression chamber of the removed A/C compressor depending on how it was stored.*
- *Turn the A/C compressor 10 times by hand before installing the ribbed belt after installing a new A/C compressor or filling with fresh refrigerant oil in order to avoid damaging the A/C compressor when using it for the first time.*

– Install the A/C compressor on the bracket. Refer to ⇒ C3.3 ompressor, Removing and Installing on Bracket", page 164 .

– Attach the refrigerant lines to the A/C compressor. Refer to ⇒ L3.4 ines, Removing and Installing to A/C Compressor", page 169 .

– Evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 .

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Read the information for starting the A/C system after installing the A/C compressor. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; A/C System General Information or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station; A/C System, Starting after Filling. After recharging, before activating the A/C system.

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3.6 Belt Pulley, Removing and Installing

⇒ P3.6.1 ulley, Removing and Installing, Denso A/C Compressor", page 176

⇒ P3.6.2 ulley, Removing and Installing, Sanden A/C Compressor", page 178

3.6.1 Belt Pulley, Removing and Installing, Denso A/C Compressor

Note

- *The belt pulley is sensitive to impact. Handle it with special care.*
- *If the belt pulley overload protection was activated, check the A/C compressor for ease of movement before replacing the belt pulley. Replace an A/C compressor that is not operating smoothly.*
- *If the drive plate overload protection was activated, the belt pulley can be rotated using the outer part of the drive plate so that the A/C compressor shaft and the hex fitting on the drive plate (inner part of the drive plate) do not rotate.*
- *The following shows the A/C compressor on a vehicle with a 4-cylinder engine. On vehicles with a 5-cylinder engine (Audi TT RS) the layout of the components is different however the removing and installing of the A/C compressor belt pulley is performed in the same way.*

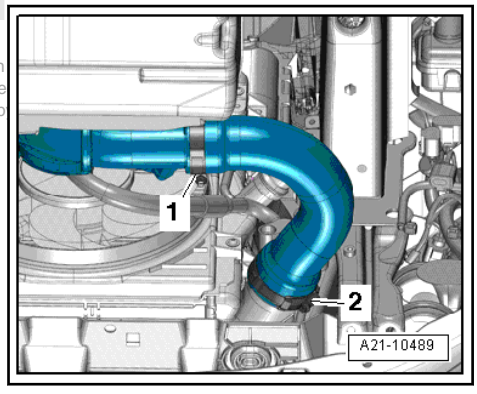
Special tools and workshop equipment required

- Commercially available oil filter band wrench

Removing

– Detach the right front wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Front Wheel Housing Liner, Removing and Installing.

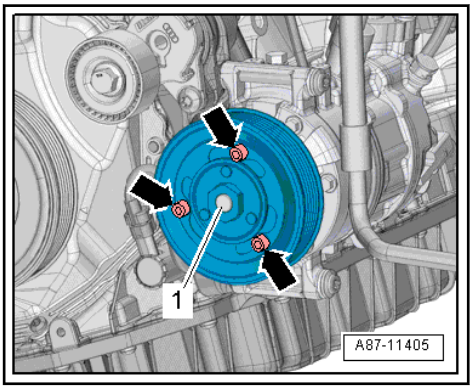
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– Loosen the hose clamps -1 and 2- and remove the air duct hose.

– Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

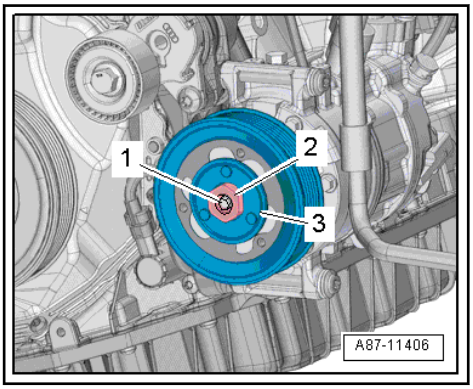
– Remove the closure cap -1-.



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– Remove the bolts -arrows- by counterholding the belt pulley with an oil filter band wrench.

– Remove the nut -2- by counterholding the A/C compressor input shaft -1-.

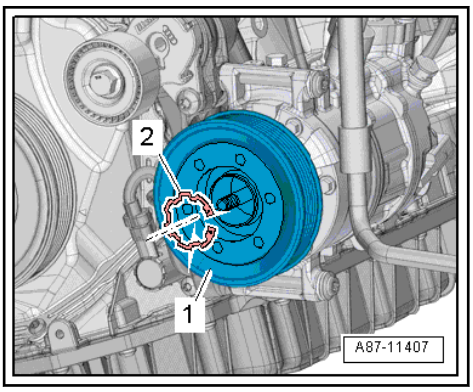


– Remove the drive plate -3- with the nut.

Note

- *The torque to drive the A/C compressor is transferred to the A/C compressor shaft via the drive plate threaded connection.*
- *If, when operating the A/C compressor, the drive plate was attached to the A/C compressor shaft so tightly, that it can no longer be loosened (the 7 mm hex fitting cannot transfer the necessary torque), the A/C compressor must be replaced.*

– Remove the circlip -2-.



– Remove the belt pulley -1-.

Installing

Install in the reverse order of removal while noting the following:

- Tightening specification. Refer to ⇒ -3.2.1 Belt Pulley, Denso A/C Compressor", page 158 .

Note

Replace the circlip.

– Clean the A/C compressor input shaft before installing the belt pulley.

– Place the belt pulley onto the A/C compressor input shaft.

- Installation must be possible without much force.

– Insert the circlip on the correct side.

- Flat side faces the A/C compressor

– Clean the threads of the A/C compressor input shaft before installing the drive plate.

Note

The threads of the new drive plate has already been greased with a specific amount of a grease by the manufacturer.

3.6.2 Belt Pulley, Removing and Installing, Sanden A/C Compressor

Note

- *The belt pulley is sensitive to impact. Handle it with special care.*
- *If the belt pulley overload protection was activated, check the A/C compressor for ease of movement before replacing the belt pulley. Replace an A/C compressor that is not operating smoothly.*
- *If the drive plate overload protection was activated, the belt pulley can be rotated using the outer part of the drive plate so that the A/C compressor shaft and the hex fitting on the drive plate (inner part of the drive plate) do not rotate.*

– Detach the right front wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Front Wheel Housing Liner, Removing and Installing.

– Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

– Belt Pulley, Removing and Installing. Refer to ⇒ -3.2.2 Belt Pulley, Sanden (Delphi/Mahle) A/C Compressor", page 159 .

3.7 Belt Pulley, Removing and Installing, "Delphi/Mahle" A/C Compressor

The belt pulley on "Delphi/Mahle" A/C compressors currently cannot be replaced separately. If there is a complaint, replace the entire A/C compressor.

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– Replace the A/C compressor. Refer to ⇒ C3.3 ompressor, Removing and Installing on Bracket", page 164 .

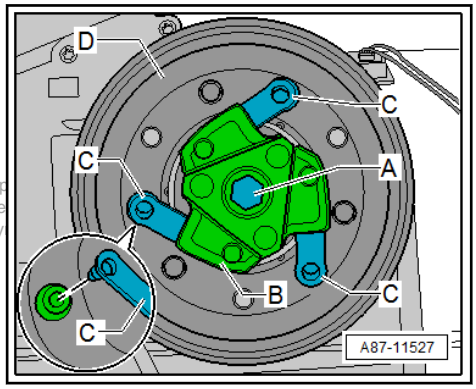
Belt pulley version "1"

Note

The belt pulley on the "Delphi/Mahle" A/C compressor version "1" is currently identical in construction to the belt pulley on the "Sanden" A/C compressor. Refer to ⇒ -3.2.2 Belt Pulley, Sanden (Delphi/Mahle) A/C Compressor", page 159 . However, the drive plate is secured with a self-locking bolt ⇒ Item 2 (page 162) to the A/C compressor shaft.

Belt pulley version "2"

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Note

- *The drive plate -B- is bolted to the A/C compressor shaft with the bolt -A- (tightening specification: 20 Nm).*
- *The spring elements (overload protection) -C- on the drive plate -B- will loosen when the torque is too high (for example, if the A/C compressor runs with resistance) and the belt pulley -D- runs freely without driving the A/C compressor.*

4 Actuators

⇒ T4.1 emperature Control Door MotorV68 with Temperature Control Door Motor Position SensorG92, Removing and Installing", page 180

⇒ D4.2 efroster Door MotorV107 with Defroster Door Motor Position SensorG135, Removing and Installing", page 182

⇒ R4.3 ecirculation Door MotorV113, Removing and Installing", page 185

⇒ L4.4 eft Temperature Control Door MotorV158 with Left Temperature Control Door Motor Position SensorG220, Removing and Installing", page 186

⇒ R4.5 ight Temperature Control Door MotorV159 with Right Temperature Control Door Motor Position SensorG221, Removing and Installing", page 188

⇒ F4.6 resh Air/Recirculating Air/Back Pressure Door MotorV425 with Fresh Air/Recirculating Air/Back Pressure Door Motor Position SensorG644, Removing and Installing", page 190

⇒ A4.7 ir/Recirculating Air/Back Pressure Door Adjuster, Removing and Installing", page 192

⇒ A4.8 ir Distribution Door MotorV428 with Air Distribution Door Motor Position SensorG645, Removing and Installing", page 195

⇒ F4.9 ront Air Distribution Door MotorV426 with Front Air Distribution Door Motor Position SensorG642, Removing and Installing", page 197

⇒ L4.10 eft Side Window Defroster Door MotorV409 with Left Front Defroster/Upper Body Vent Shut-Off Door Motor Position SensorG318, Removing and Installing", page 200

⇒ R4.11 ight Side Window Defroster Door MotorV410 with Right Front Defroster/Upper Body Vent Shut-Off Door Motor Position SensorG317, Removing and Installing", page 202

⇒ D4.12 istribution Door Adjuster, Removing and Installing", page 204

4.1 Temperature Control Door Motor -V68- with Temperature Control Door Motor Position Sensor -G92-, Removing and Installing

Manual Climate Control System

Removing

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

LHD vehicle

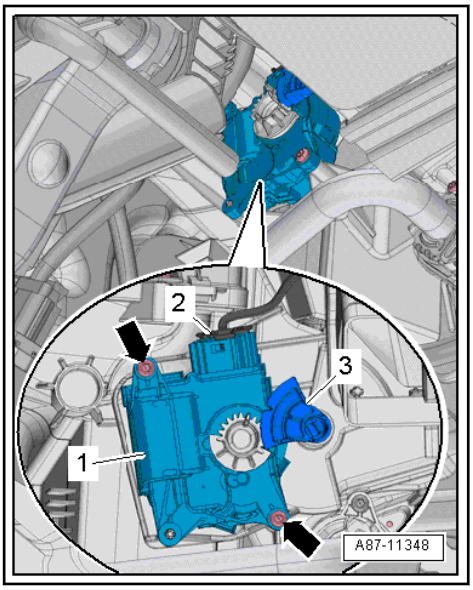
– Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

RHD vehicles

– Remove the footwell vent on the front passenger side. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

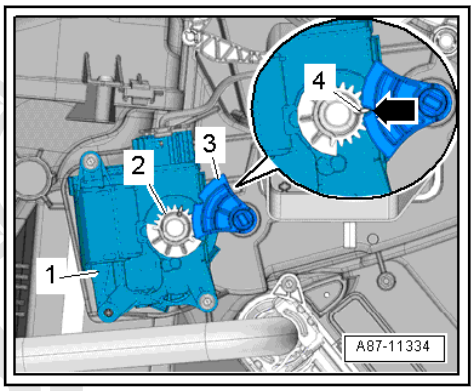
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Continuation for All Vehicles



– Remove the bolts -arrows-.
– Pivot the Temperature Control Door Motor -V68- -1- out from behind the actuating shaft -3- for the temperature control door.
– Disconnect the connector -2-.
– Remove the actuator.

Installing



Install in the reverse order of removal while noting the following:

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Note

- *Check the function of the doors and linkage before installing.*
- *Check if the levers and shafts are seated correctly in the mounts.*

– Mount the actuator -1- onto the air distribution housing. When doing so, the toothed gear -2- on the actuator must engage into the toothed gear -3- on the temperature control door lever.

- The long tooth -4- must engage into the opening -arrow- on the actuating arm.

Note

- *If the toothed gear on the actuator and the toothed gear on the temperature control door lever do not align, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .*
- *If the screws cannot be installed, the actuator does not sit completely on the housing.*

– Route the wiring harness so that it cannot come in contact with any moving parts (for example, the actuator lever).

– To check the actuator function, connect the adapter cable (refer to ⇒ I4.11 nformation", page 59) or connect the actuator contacts "5" and "6" to a 12 V battery via a 5A fuse using a cable from the Connector Test Set -V.A.G 1594D-.

Note

Turn the actuator so far until it has reached a favorable position for installation. The direction of rotation can be reversed by switching the positive and negative.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the "basic setting". Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

Tightening Specifications

- Refer to ⇒ -5.1 Heater and A/C Unit", page 209

4.2 Defroster Door Motor -V107- with Defroster Door Motor Position Sensor -G135-, Removing and Installing

Automatic Climate Control System

Removing

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

LHD vehicle

– Remove the footwell vent on the front passenger side. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

– Remove the instrument panel. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Instrument Panel, Removing and Installing.

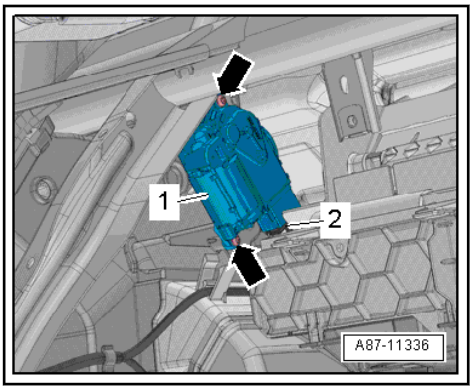
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RHD vehicles

– Remove the instrument cluster. Refer to ⇒ Electrical Equipment; Rep. Gr. 90; Instrument Cluster; Overview - Instrument Cluster.

– Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

Continuation for All Vehicles



– Remove the bolts -arrows-.

Note

- *The bolts are behind the central tube and cannot always be reached from below.*
- *Use a magnetic screwdriver to remove the bolts, or have a second technician hold a magnet through the instrument cluster opening over the bolt. If a bolt falls, it goes into the tray for the wiring duct and cannot be reached.*

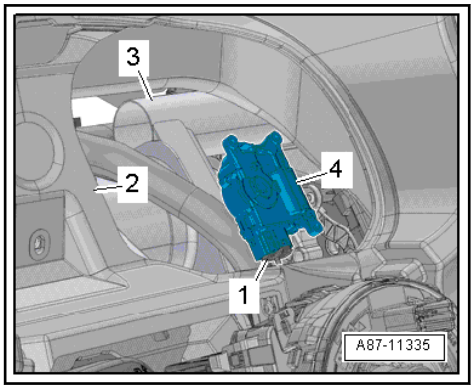
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– Disconnect the connector -2-.

LHD vehicle

– Remove the Defroster Door Motor -V107- -1-.

RHD vehicles



– Remove the Defroster Door Motor -V107- -4- and remove it between the heater and A/C unit and central tube -3- toward the opening -2- for the instrument cluster.

Continuation for All Vehicles

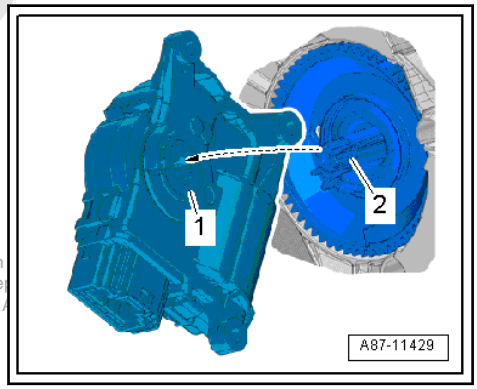
Installing

Install in the reverse order of removal while noting the following:

Note

- *Check the function of the doors and linkage before installing.*
- *Check if the levers and shafts are seated correctly in the mounts.*

– The actuator mount can only be installed in one position on the actuating arm -2-.



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- The actuator mount must align with the relay lever as shown.

Note

If the mount and the relay lever do not align, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .

– Mount the actuator on the air distribution housing. While doing so, the relay lever must engage into the mount -1- in the direction of -arrow-.

- There must not be any play in the connection between the actuator and the relay lever.

Note

If the screws cannot be installed, the actuator does not sit completely on the housing.

– Route the wiring harness so that it cannot come in contact with any moving parts (for example, the actuator lever).

– To check the actuator function, connect the adapter cable (refer to ⇒ I4.11 nformation", page 59) or connect the actuator contacts "5" and "6" to a 12 V battery via a 5A fuse using a cable from the Connector Test Set -V.A.G 1594D-.

Note

Turn the actuator so far until it has reached a favorable position for installation. The direction of rotation can be reversed by switching the positive and negative.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the "basic setting". Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

Tightening Specifications

◆ Refer to ⇒ -5.1 Heater and A/C Unit", page 209

4.3 Recirculation Door Motor -V113-, Removing and Installing

Manual Climate Control System

Removing

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

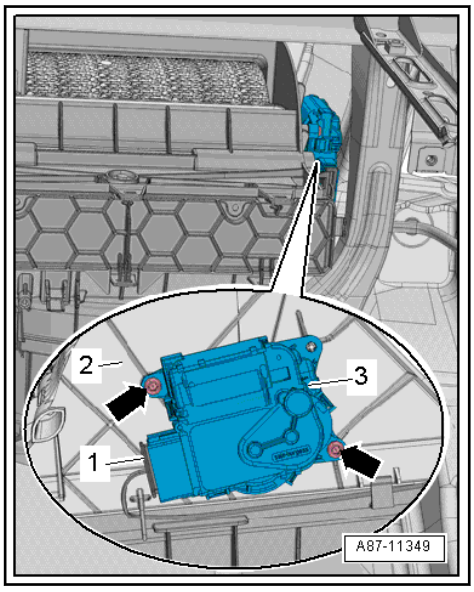
LHD vehicle

– Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments and Covers; Glove Compartment, Removing and Installing.

RHD vehicles

– Remove the instrument panel central tube. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel Central Tube.

Continuation for All Vehicles

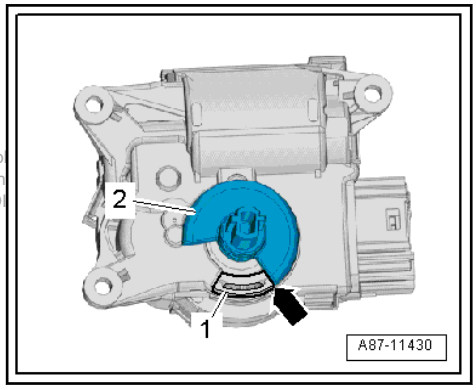


– Remove the bolts -arrows-.

– Remove the Recirculation Door Motor -V113- -3- from the air intake duct -2-.

– Disconnect the connector -1-.

Installing



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Install in the reverse order of removal while noting the following:

Note

- *Check the function of the doors and linkage before installing.*
- *Check if the levers and shafts are seated correctly in the mounts.*

– The fresh air door must be set to “opened”.

• The actuating shaft -2- must contact the stop -1- -arrow- as shown.

Note

If the actuating shaft of the actuator is not set to the “fresh air mode” stop, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation”, page 59 .

– Mount the actuator on the air intake manifold. While doing so, the actuating shaft must engage into the mount.

• There must not be any play in the connection between the actuating shaft and the mount.

Note

If the screws cannot be installed, the actuator does not sit completely on the housing.

– Route the wiring harness so that it cannot come in contact with any moving parts (for example, the actuator lever).

– To check the actuator function, connect the adapter cable (refer to ⇒ I4.11 nformation”, page 59) or connect the actuator contacts “5” and “6” to a 12 V battery via a 5A fuse using a cable from the Connector Test Set -V.A.G 1594D-.

Note

Turn the actuator so far until it has reached a favorable position for installation. The direction of rotation can be reversed by switching the positive and negative.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the “basic setting”. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

– Check the heating and A/C system function.

Tightening Specifications

♦ Refer to ⇒ -5.1 Heater and A/C Unit”, page 209

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4.4 Left Temperature Control Door Motor -V158- with Left Temperature Control

Door Motor Position Sensor -G220-, Removing and Installing

Automatic Climate Control System

Removing

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

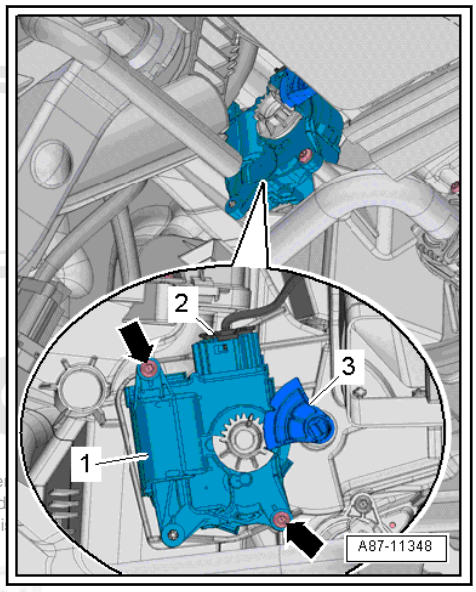
LHD vehicle

– Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

RHD vehicles

– Remove the footwell vent on the front passenger side. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

Continuation for All Vehicles



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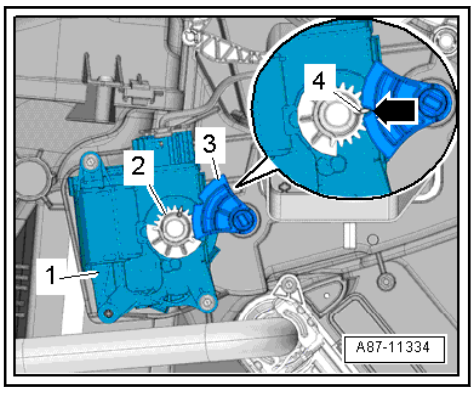
– Remove the bolts -arrows-.

– Pivot the Left Temperature Control Door Motor -V158- -1- out from behind the actuating shaft -3- for the temperature control door.

– Disconnect the connector -2-.

– Remove the actuator.

Installing



Install in the reverse order of removal while noting the following:

Note

- *Check the function of the doors and linkage before installing.*
- *Check if the levers and shafts are seated correctly in the mounts.*

– Mount the actuator -1- onto the air distribution housing. When doing so, the toothed gear -2- on the actuator must engage into the toothed gear -3- on the temperature control door lever.

- The long tooth -4- must engage into the opening -arrow- on the actuating arm.

Note

- *If the toothed gear on the actuator and the toothed gear on the temperature control door lever do not align, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .*
- *If the screws cannot be installed, the actuator does not sit completely on the housing.*

– Route the wiring harness so that it cannot come in contact with any moving parts (for example, the actuator lever).

– To check the actuator function, connect the adapter cable (refer to ⇒ I4.11 nformation", page 59) or connect the actuator contacts "5" and "6" to a 12 V battery via a 5A fuse using a cable from the Connector Test Set -V.A.G 1594D-.

Note

Turn the actuator so far until it has reached a favorable position for installation. The direction of rotation can be reversed by switching the positive and negative.

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– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the "basic setting". Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

Tightening Specifications

- Refer to ⇒ -5.1 Heater and A/C Unit", page 209

4.5 Right Temperature Control Door Motor -V159- with Right Temperature Control Door Motor Position Sensor -G221-, Removing and Installing

Automatic Climate Control System

Removing

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

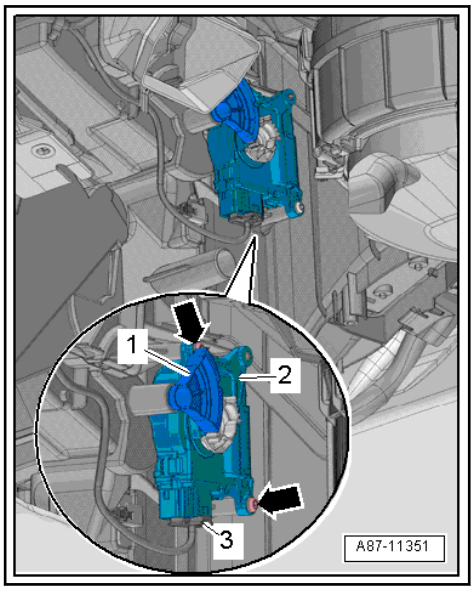
LHD vehicle

– Remove the footwell vent on the front passenger side. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

RHD vehicles

– Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

Continuation for All Vehicles



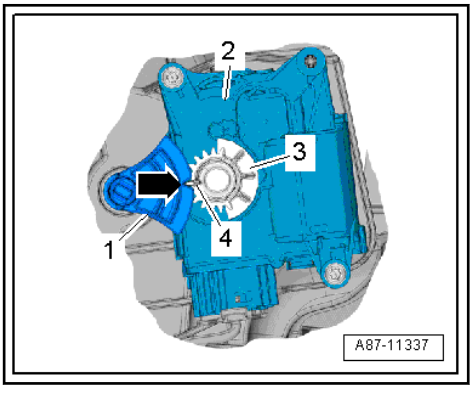
– Remove the actuating shaft -1- for the temperature control door.

– Remove the bolts -arrows-.

– Remove the Right Temperature Control Door Motor -V159- -item 2-.

– Disconnect the connector -3-.

Installing



Install in the reverse order of removal while noting the following:

Note

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- *Check the function of the doors and linkage before installing.*
- *Check if the levers and shafts are seated correctly in the mounts.*

– Mount the actuator -2- on the air distribution housing. When doing so, the toothed gear -3- on the actuator must engage into the toothed gear -1- on the temperature control door lever.

• The long tooth -4- must engage into the opening -arrow- on the actuating arm.

Note

♦ *If the toothed gear on the actuator and the toothed gear on the temperature control door lever do not align, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .*

♦ *If the screws cannot be installed, the actuator does not sit completely on the housing.*

– Route the wiring harness so that it cannot come in contact with any moving parts (for example, the actuator lever).

– To check the actuator function, connect the adapter cable (refer to ⇒ I4.11 nformation", page 59) or connect the actuator contacts "5" and "6" to a 12 V battery via a 5A fuse using a cable from the Connector Test Set -V.A.G 1594D-.

Note

Turn the actuator so far until it has reached a favorable position for installation. The direction of rotation can be reversed by switching the positive and negative.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the "basic setting". Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

Tightening Specifications

♦ Refer to ⇒ -5.1 Heater and A/C Unit", page 209

4.6 Fresh Air/Recirculating Air/Back Pressure Door Motor -V425- with Fresh Air/Recirculating Air/Back Pressure Door Motor Position Sensor -G644-, Removing and Installing

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Automatic Climate Control System

Removing

– Switch the ignition off.

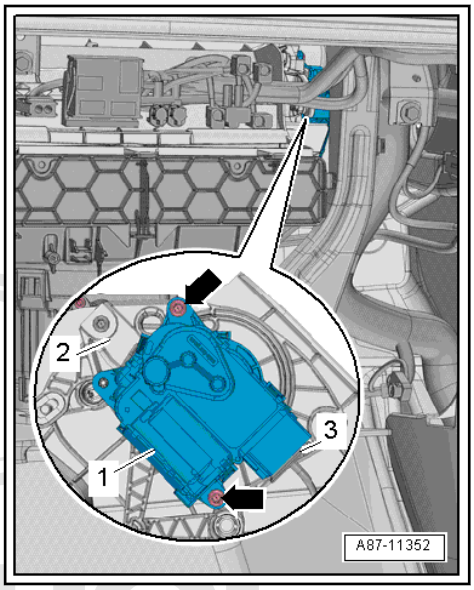
– Versions with ignition lock: remove the ignition key.

– Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments and Covers; Glove Compartment, Removing and Installing.

RHD vehicles

– Remove the instrument panel central tube. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel Central Tube.

Continuation for All Vehicles



– Remove the bolts -arrows-.
– Remove the Fresh Air/Recirculating Air/Back Pressure Door Motor -V425- -item 1- from the air intake duct.
– Disconnect the connector -3-.

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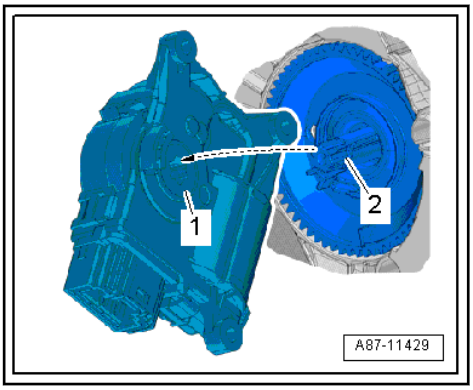
Installing

Install in the reverse order of removal while noting the following:

Note

- *Check the function of the doors and linkage before installing.*
- *Check if the levers and shafts are seated correctly in the mounts.*

– The actuator mount can only be installed in one position on the actuating arm -2-.



• The actuator mount must align with the relay lever as shown.

Note

If the mount and the relay lever do not align, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .

– Mount the actuator on the air distribution housing. While doing so, the relay lever must engage into the mount -1- in the direction of -arrow-.

- There must not be any play in the connection between the actuator and the relay lever.

Note

If the bolts cannot be installed, the actuator does not sit completely on the housing.

– Route the wiring harness so that it cannot come in contact with any moving parts (for example, the actuator lever).

– To check the actuator function, connect the adapter cable (refer to ⇒ I4.11 nformation", page 59) or connect the actuator contacts "5" and "6" to a 12 V battery via a 5A fuse using a cable from the Connector Test Set -V.A.G 1594D-.

Note

Turn the actuator so far until it has reached a favorable position for installation. The direction of rotation can be reversed by switching the positive and negative.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the "basic setting". Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

Tightening Specifications

♦ Refer to ⇒ -5.1 Heater and A/C Unit", page 209

4.7 Fresh Air/Recirculating Air/Back Pressure Door Adjuster, Removing and Installing

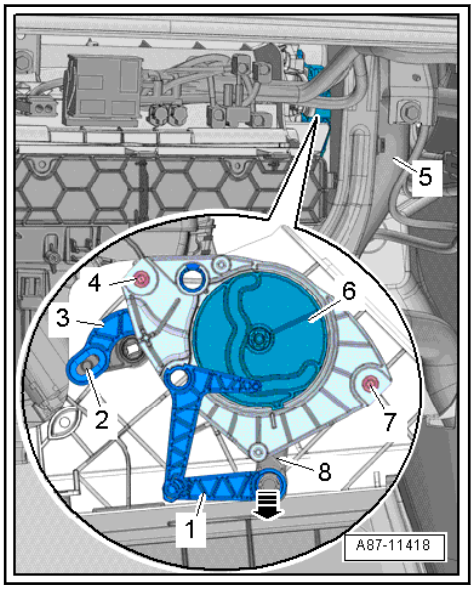
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Automatic Climate Control System

Removing

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.



– Remove the fresh air/recirculating air/back pressure door motor. Refer to ⇒ F4.6 resh Air/Recirculating Air/Back Pressure Door MotorV425 with Fresh Air/Recirculating Air/Back Pressure Door Motor Position SensorG644, Removing and Installing", page 190 .
– Free up the wiring harness -5-.
– Carefully remove the operating lever -1- from the lever for the fresh air/recirculating air door -8- in the direction of -arrow-.
– Remove the bolts -4 and 7-.
– Remove the adjuster -6-.

Installing

Install in the reverse order of removal while noting the following:

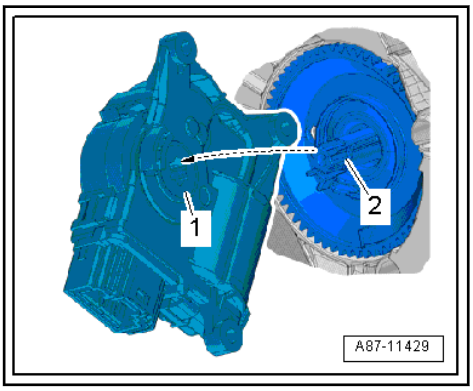
Note

♦ *Check the function of the doors and linkage before installing.*

♦ *Check if the levers and shafts are seated correctly in the mounts.*

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The actuator mount can only be installed in one position on the actuating arm -2-.



• The actuator mount must align with the relay lever as shown.

Note

If the mount and the relay lever do not align, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .

– Mount the actuator on the air distribution housing. While doing so, the relay lever must engage into the mount -1- in the direction of -arrow-.

- There must not be any play in the connection between the actuator and the relay lever.

Note

If the bolts cannot be installed, the actuator does not sit completely on the housing.

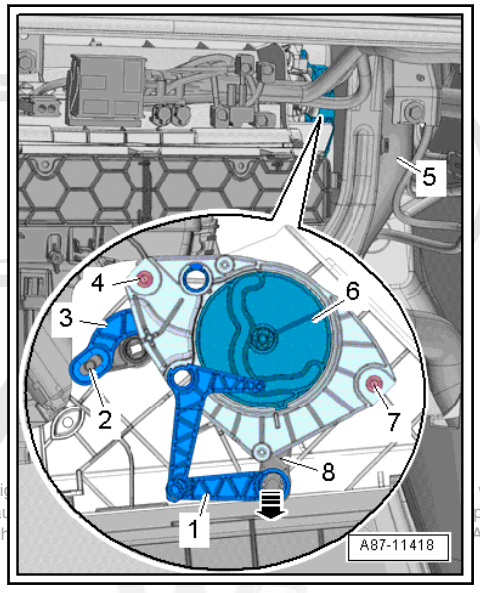
– Route the wiring harness so that it cannot come in contact with any moving parts (for example, the actuator lever).

– To check the actuator function, connect the adapter cable (refer to ⇒ I4.11 nformation", page 59) or connect the actuator contacts "5" and "6" to a 12 V battery via a 5A fuse using a cable from the Connector Test Set -V.A.G 1594D-.

Note

Turn the actuator so far until it has reached a favorable position for installation. The direction of rotation can be reversed by switching the positive and negative.

– When mounting the adjuster, the operating lever -3- must engage into the back pressure door lever -2-.



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– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the "basic setting". Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

Tightening Specifications

♦ Refer to ⇒ -5.1 Heater and A/C Unit", page 209

4.8 Air Distribution Door Motor -V428- with Air Distribution Door Motor Position Sensor -G645-, Removing and Installing

Manual Climate Control System

Removing

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

LHD vehicle

– Remove the instrument cluster. Refer to ⇒ Electrical Equipment; Rep. Gr. 90; Instrument Cluster; Overview - Instrument Cluster.

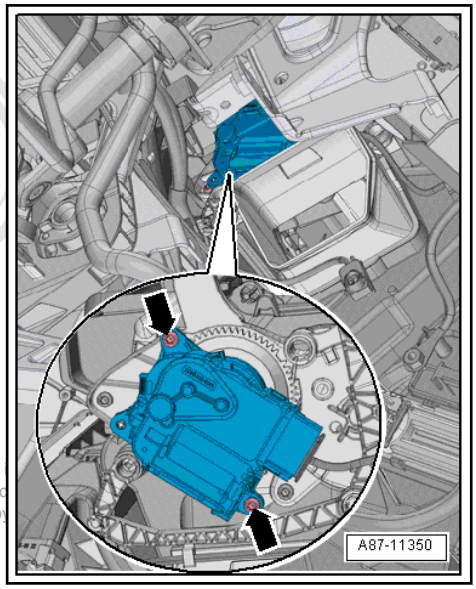
– If installed, remove the Access/Start Authorization Control Module -J518-. Refer to ⇒ Electrical Equipment; Rep. Gr. 94; Access/Start Authorization (Overview - Access/Start Authorization System).

– Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

RHD vehicles

– Remove the footwell vent on the front passenger side. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

Continuation for All Vehicles



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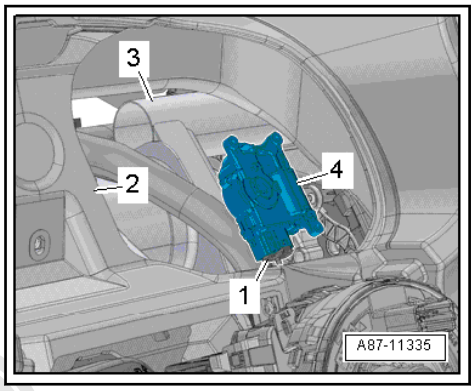
– Remove the bolts -arrows-.

Note

- *The bolts are behind the central tube and cannot always be reached from below.*
- *Use a magnetic screwdriver to remove the bolts, or have a second technician hold a magnet through the instrument cluster opening over the bolt. If a bolt falls, it goes into the tray for the wiring duct and cannot be reached.*

– Disconnect the connector -1-.

LHD vehicle



– Remove the Air Distribution Door Motor -V428- -4- and remove it between the heater and A/C unit and central tube -3- toward the opening -2- for the instrument cluster.

RHD vehicles

– Remove the Air Distribution Door Motor -V428-.

Continuation for All Vehicles

Installing

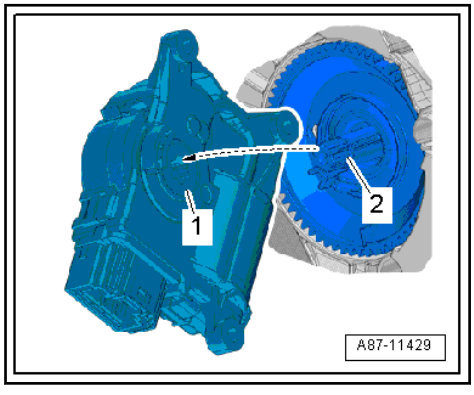
Install in the reverse order of removal while noting the following:

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Note

- *Check the function of the doors and linkage before installing.*
- *Check if the levers and shafts are seated correctly in the mounts.*

– The actuator mount can only be installed in one position on the actuating arm -2-.



- The actuator mount must align with the relay lever as shown.

Note

If the mount and the relay lever do not align, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .

– Mount the actuator on the air distribution housing. While doing so, the relay lever must engage into the mount -1- in the direction of -arrow-.

- There must not be any play in the connection between the actuator and the relay lever.

Note

If the bolts cannot be installed, the actuator does not sit completely on the housing.

– Route the wiring harness so that it cannot come in contact with any moving parts (for example, the actuator lever).

– To check the actuator function, connect the adapter cable (refer to ⇒ I4.11 nformation", page 59) or connect the actuator contacts "5" and "6" to a 12 V battery via a 5A fuse using a cable from the Connector Test Set -V.A.G 1594D-.

Note

Turn the actuator so far until it has reached a favorable position for installation. The direction of rotation can be reversed by switching the positive and negative.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the "basic setting". Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

Tightening Specifications

♦ Refer to ⇒ -5.1 Heater and A/C Unit", page 209

4.9 Front Air Distribution Door Motor -V426- with Front Air Distribution Door Motor Position Sensor -G642-, Removing and Installing

Automatic Climate Control System

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Removing

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

LHD vehicle

– Remove the instrument cluster. Refer to ⇒ Electrical Equipment; Rep. Gr. 90; Instrument Cluster; Overview - Instrument Cluster.

– If installed, remove the Access/Start Authorization Control Module -J518-. Refer to ⇒ Electrical Equipment; Rep. Gr. 94;

Access/Start Authorization (Overview - Access/Start Authorization System).

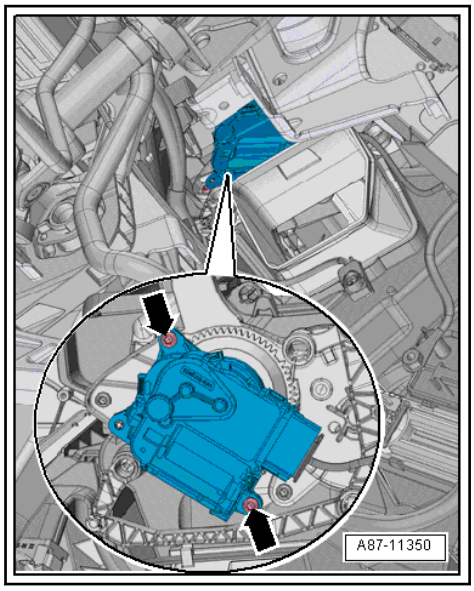
– Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

RHD vehicles

– Remove the footwell vent on the front passenger side. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

Continuation for All Vehicles

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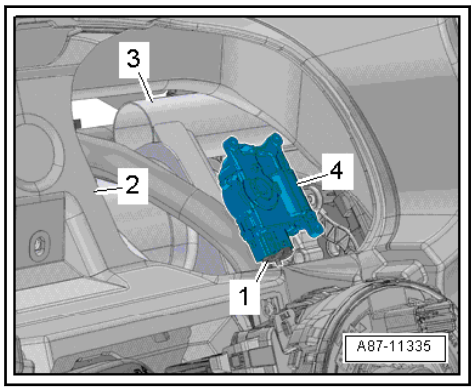
– Remove the bolts -arrows-.

Note

- *The bolts are behind the central tube and cannot always be reached from below.*
- *Use a magnetic screwdriver to remove the bolts, or have a second technician hold a magnet through the instrument cluster opening over the bolt. If a bolt falls, it goes into the tray for the wiring duct and cannot be reached.*

– Disconnect the connector -1-.

LHD vehicle



– Remove the Front Air Distribution Door Motor -V426- -4- and remove it between the heater and A/C unit and central tube -3- toward the opening -2- for the instrument cluster.

RHD vehicles

– Remove the Front Air Distribution Flap Motor -V426-.

Continuation for All Vehicles

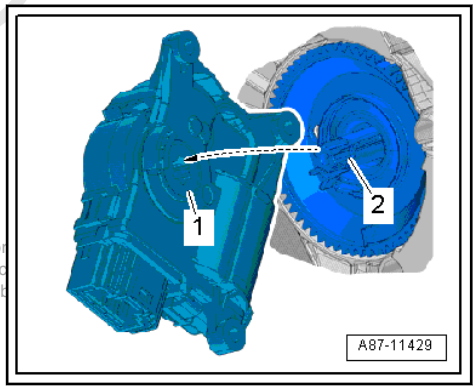
Installing

Install in the reverse order of removal while noting the following:

Note

- *Check the function of the doors and linkage before installing.*
- *Check if the levers and shafts are seated correctly in the mounts.*

– The actuator mount can only be installed in one position on the actuating arm -2-.



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- The actuator mount must align with the relay lever as shown.

Note

If the mount and the relay lever do not align, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .

– Mount the actuator on the air distribution housing. While doing so, the relay lever must engage into the mount -1- in the direction of -arrow-.

- There must not be any play in the connection between the actuator and the relay lever.

Note

If the bolts cannot be installed, the actuator does not sit completely on the housing.

– Route the wiring harness so that it cannot come in contact with any moving parts (for example, the actuator lever).

– To check the actuator function, connect the adapter cable (refer to ⇒ I4.11 nformation", page 59) or connect the actuator contacts "5" and "6" to a 12 V battery via a 5A fuse using a cable from the Connector Test Set -V.A.G 1594D-.

Note

Turn the actuator so far until it has reached a favorable position for installation. The direction of rotation can be reversed by switching the positive and negative.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the “basic setting”. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

– Check the heating and A/C system function.

Tightening Specifications

♦ Refer to ⇒ -5.1 Heater and A/C Unit”, page 209

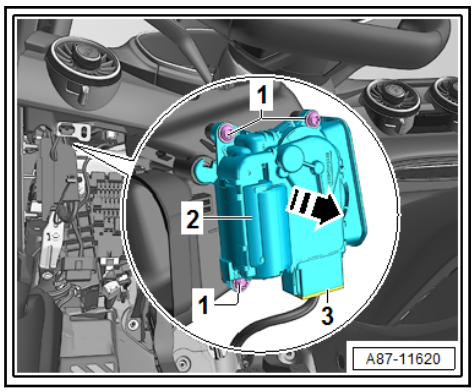
4.10 Left Side Window Defroster Door Motor -V409- with Left Front Defroster/Upper Body Vent Shut-Off Door Motor Position Sensor -G318-, Removing and Installing

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

– Remove the left air duct. Refer to ⇒ A6.3.1 ir Duct with Left Side Window Defroster Door MotorV409, Removing and Installing”, page 295 .

– Remove the bolts -1-.



– Remove the Left Side Window Defroster Door Motor -V409- -2- from the air duct.

– Disconnect the connector -3-.

Installing

Install in the reverse order of removal while noting the following:

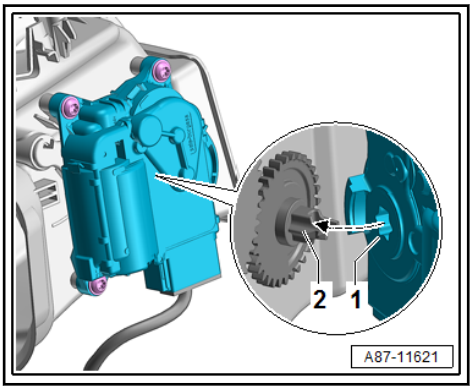
Note

♦ *Check the function of the doors and linkage before installing.*

♦ *Check if the levers and shafts are seated correctly in the mounts.*

– The actuator mount -1- can only be installed in one position on the pin -2-.

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- The actuator mount -1- must align with the pin -2-.

– Position the actuator on the pin -2-. It must engage in the mount -1- while doing so.

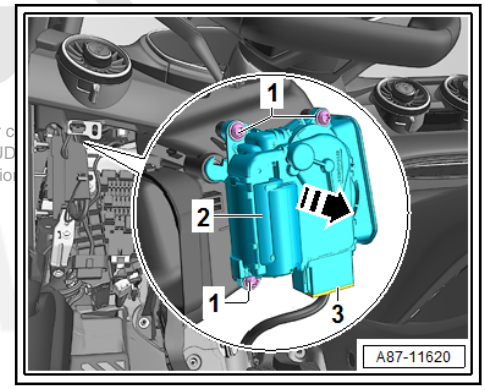
Note

If the mount and the pin are not aligned, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .

- There must not be any play in the connection between the pin -2- and the mount -1- for the actuator.

– Install the screws -1- (tightening specification: 1 Nm).

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Note

- *If the mount on the actuator and the toothed gear on the door lever do not align, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .*
- *If the screws cannot be inserted, then the actuator is not resting completely on the housing. The actuator mount may not be positioned correctly, for example. Refer to ⇒ I4.11 nformation", page 59 .*

– Route the wiring harness so that it cannot come in contact with any moving parts.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the "basic setting". Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

4.11 Right Side Window Defroster Door Motor -V410- with Right Front Defroster/Upper Body Vent Shut-Off Door Motor Position Sensor -G317-, Removing and Installing

WARNING

Risk of injury by the airbag.

- *Before working in an area with pyrotechnic components, the person must "discharge static electricity". Pay attention to the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 00; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components (Body Interior; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components).*

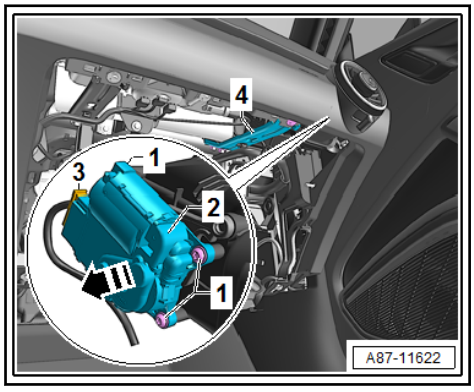
– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

LHD vehicle

– Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments and Covers; Glove Compartment, Removing and Installing.

– Remove the instrument panel -4-. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.



– Remove the bolts -1-.

– Remove the Right Side Window Defroster Door Motor -V410- -2- from the air duct.

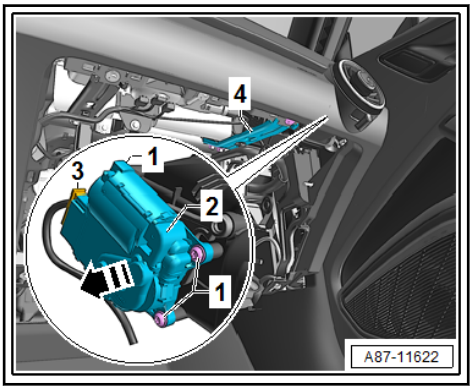
– Disconnect the connector -3-.

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RHD vehicles

– Remove the driver side air duct. Refer to ⇒ A6.3.2 ir Duct with Right Side Window Defroster Door MotorV410, Removing and Installing", page 296 .

– Remove the bolts -1-.



– Remove the Right Side Window Defroster Door Motor - V410- -2- from the air duct.

– Disconnect the connector -3-.

Continuation for All Vehicles

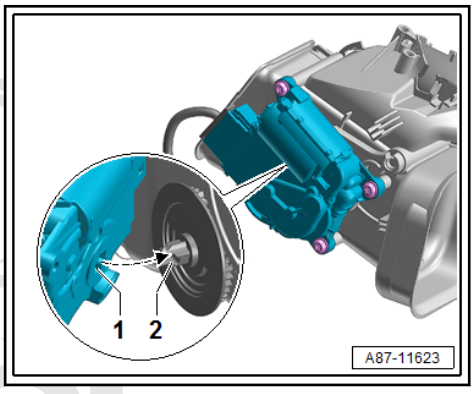
Installing

Install in the reverse order of removal while noting the following:

Note

- *Check the function of the doors and linkage before installing.*
- *Check if the levers and shafts are seated correctly in the mounts.*

– The actuator mount -1- can only be installed in one position on the pin -2-.



• The actuator mount -1- must align with the pin -2-.

Note

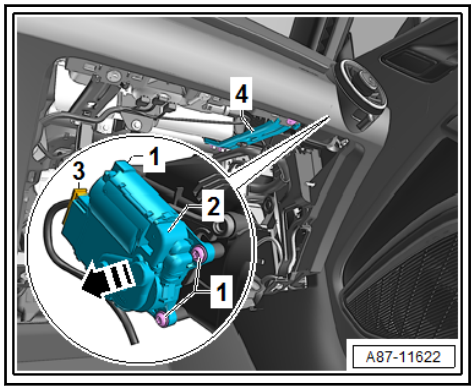
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If the mount and the pin are not aligned, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .

– Position the actuator on the pin -2-. It must engage in the mount -1- while doing so.

• There must not be any play in the connection between the pin -2- and the mount -1- for the actuator.

– Install the screws -1- (tightening specification: 1 Nm).



Note

- *If the mount on the actuator and the toothed gear on the door lever do not align, turn the mount in the actuator. See notes. Refer to ⇒ I4.11 nformation", page 59 .*
- *If the screws cannot be inserted, then the actuator is not resting completely on the housing. The actuator mount may not be positioned correctly, for example. Refer to ⇒ I4.11 nformation", page 59 .*

– Route the wiring harness so that it cannot come in contact with any moving parts.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the "basic setting". Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

4.12 Air Distribution Door Adjuster, Removing and Installing

⇒ A4.12.1 ir Distribution Door Adjuster, Removing and Installing, Manual Climate Control System", page 204

⇒ A4.12.2 ir Distribution Door Adjuster, Removing and Installing, Automatic Climate Control System", page 206

4.12.1 Front Air Distribution Door Adjuster, Removing and Installing, Manual Climate Control System

Removing

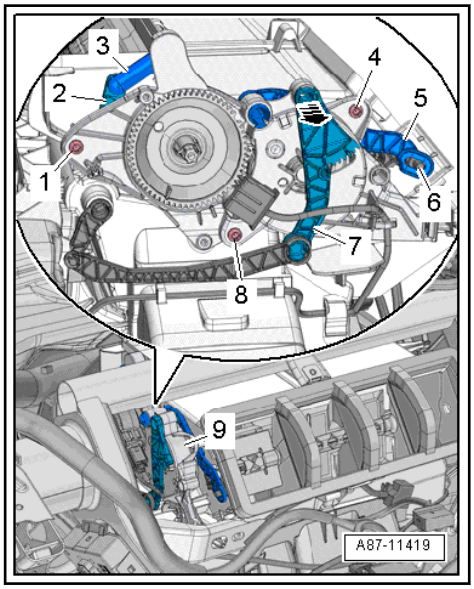
– Remove the instrument panel. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Instrument Panel, Removing and Installing.

– Remove the air duct to the center defroster vent. Refer to ⇒ V6.2.4 ent Air Duct, Removing and Installing", page 291 .

– Remove the front air distribution door motor. Refer to ⇒ A4.8 ir Distribution Door MotorV428 with Air Distribution Door Motor Position SensorG645, Removing and Installing", page 195 .

– Carefully remove the operating lever -7- in the direction of -arrow-.

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– Carefully remove the operating lever -3- from the lever for the defroster door -2-.
– Remove the screws -1, 4 and 8-.
– Remove the adjuster -9- upward.

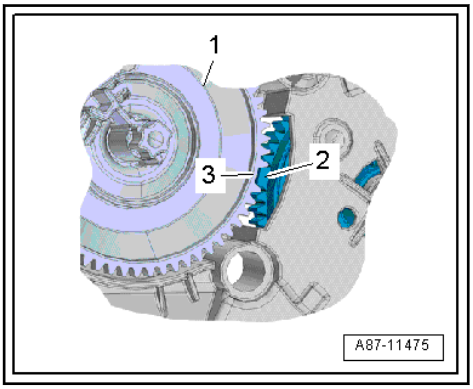
Installing

Install in the reverse order of removal while noting the following:

Note

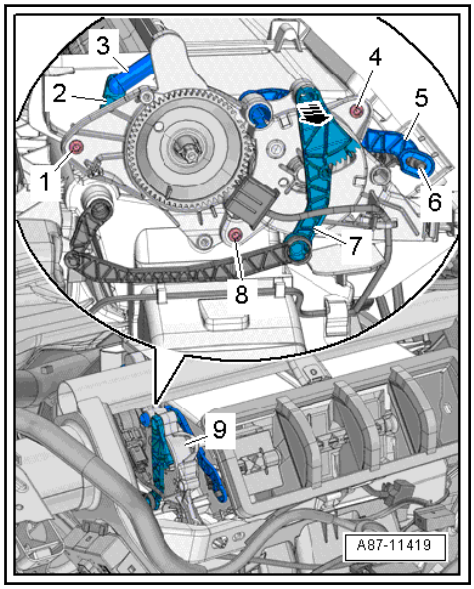
♦ *Check the function of the doors and linkage before installing.*
♦ *Check if the levers and shafts are seated correctly in the mounts.*

– Check if both toothed gears are aligned correctly to each another.



• The square tooth -2- must engage into the gap -3- on the toothed gear -1-.

– When mounting the adjuster, the operating lever -5- must engage into the door lever -6- for the center vent.



– Install the remaining components.
– Check the DTC memory and erase any displayed entries, then perform the “basic setting”. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
– Check the heating and A/C system function.

Tightening Specifications

♦ Refer to ⇒ -5.1 Heater and A/C Unit”, page 209

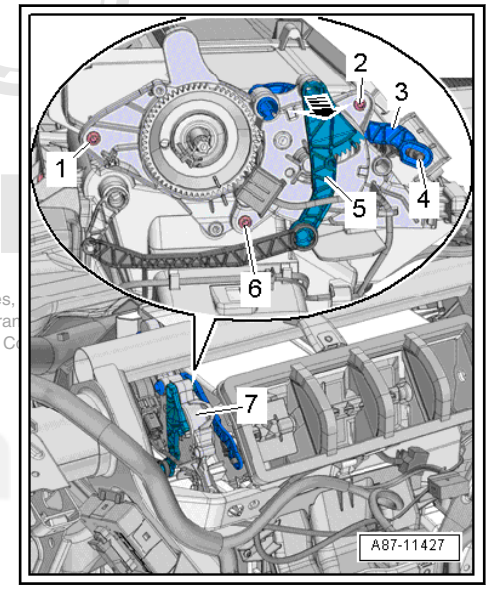
4.12.2 Front Air Distribution Door Adjuster, Removing and Installing, Automatic Climate Control System

Removing

– Remove the instrument panel. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Instrument Panel, Removing and Installing.
– Remove the air duct to the center defroster vent. Refer to ⇒ V6.2.4 ent Air Duct, Removing and Installing”, page 291 .
– Remove the front air distribution door motor. Refer to ⇒ A4.8 ir Distribution Door MotorV428 with Air Distribution Door Motor Position SensorG645, Removing and Installing”, page 195 .
– Carefully remove the operating lever -5- in the direction of -arrow-.

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– Remove the bolts -1, 2 and 6-.
– Remove the adjuster -7- upward.

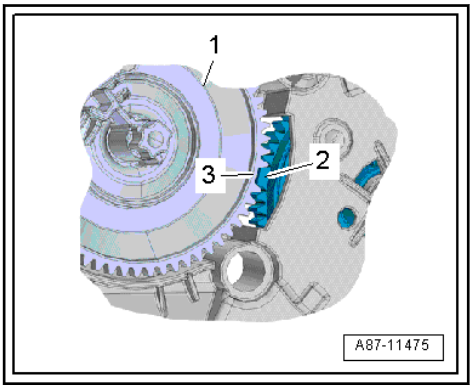
Installing

Install in the reverse order of removal while noting the following:

Note

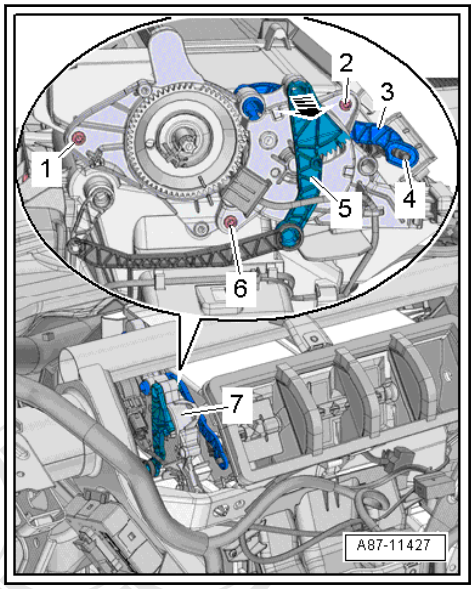
- *Check the function of the doors and linkage before installing.*
- *Check if the levers and shafts are seated correctly in the mounts.*

– Check if both toothed gears are aligned correctly to each another.



- The square tooth -2- must engage into the gap -3- on the toothed gear -1-.

– When mounting the actuator, the operating lever -3- must engage into the door lever -4- for the center vent.



– Install the remaining components.
– Check the DTC memory and erase any displayed entries, then perform the “basic setting”. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
– Check the heating and A/C system function.

Tightening Specifications

◆ Refer to ⇒ -5.1 Heater and A/C Unit”, page 209

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5 Front Heater and A/C Unit

⇒ -5.1 Heater and A/C Unit", page 209

⇒ -5.2 Attachments for Heater and A/C Unit and Air Intake Housing", page 218

⇒ -5.3 Evaporator Housing", page 220

⇒ -5.4 Air Distribution Housing Doors and Separators", page 222

⇒ R5.5 emoving and Installing", page 227

⇒ C5.6 leaning", page 229

⇒ E5.7 vaporator Vent Temperature SensorG263, Removing and Installing", page 237

⇒ V5.8 ent Temperature SensorG150/Right Vent Temperature SensorG151, Removing and Installing", page 238

⇒ a5.9 nd A/C Unit, Removing and Installing", page 239

⇒ a5.10 nd A/C Unit Bracket, Removing and Installing", page 243

⇒ a5.11 nd A/C Unit, Disassembling and Assembling", page 244

⇒ D5.12 istribution Housing, Removing and Installing", page 246

⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247

⇒ F5.14 resh Air BlowerV2, Removing and Installing", page 250

⇒ F5.15 resh Air Blower Control ModuleJ126, Removing and Installing", page 252

⇒ F5.16 ootwell Vent Temperature SensorG192, Removing and Installing", page 253

⇒ A5.17 uxiliary Heater Heating ElementZ35, Removing and Installing", page 254

⇒ C5.18 ore, Removing and Installing", page 256

⇒ C5.19 ore Coolant Pipes, Removing and Installing", page 269

⇒ W5.20 ater Drain Hose, Checking", page 273

⇒ W5.21 ater Drain Hose, Removing and Installing", page 278

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5.1 Overview - Heater and A/C Unit

Note

- *There are different versions and manufacturers of the heater and A/C units. At the start of production, only "Denso" heater and A/C units are being installed on the Audi TT. Heater and A/C units of other manufacturers may also installed at a later date. Individual components of the different heater and A/C units are similar but not the same. Interchanging components from different manufacturers is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Heater and A/C unit characteristics of other manufacturers. Refer to ⇒ a3.1 nd A/C Unit Identification", page 17 .*

Overview - Heater and A/C Unit, Left Side Door Control. Refer to ⇒ page 210 .

Overview - Heater and A/C Unit, Right Side Door Control. Refer to ⇒ page 212 .

Overview - Heater and A/C Unit, Heater Core and Auxiliary Heater Heating Element, “Denso”. Refer to ⇒ page 214 .

Overview - Heater and A/C Unit, Heater Core and Auxiliary Heater Heating Element, “Valeo”. Refer to ⇒ page 216 .

Overview - Heater and A/C Unit, Left Side Door Control

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1 - Operating Lever

- For operating the defroster and air distribution door

2 - Air Distribution Door Motor

- To check, use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

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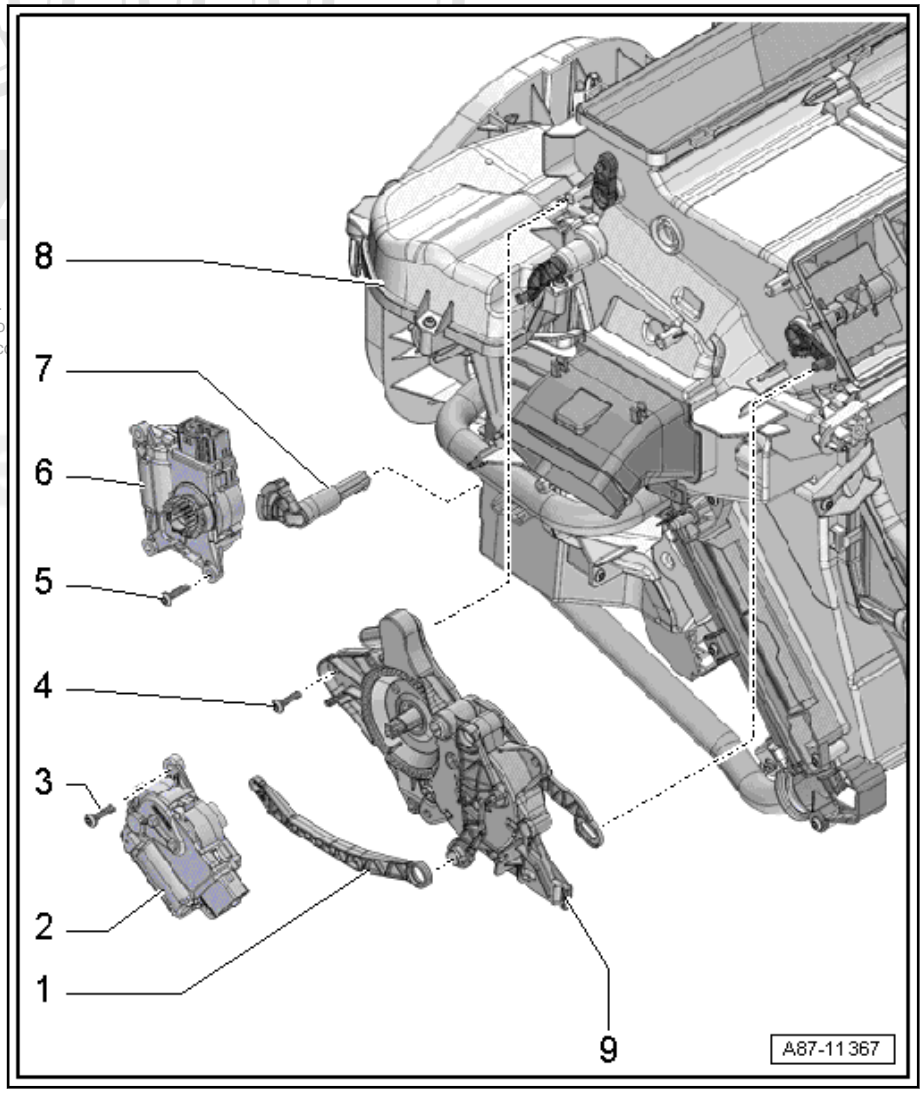
Manual Climate Control System:

Air Distribution Door Motor -V428- with Air Distribution Door Motor Position Sensor -G645-

- Removing and Installing. Refer to ⇒ A4.8 ir Distribution Door MotorV428 with Air Distribution Door Motor Position SensorG645, Removing and Installing”, page 195 .

Automatic Climate Control System:

- Front Air Distribution Door Motor -V426- with Front Air Distribution Door Motor Position Sensor -G642-
- Removing and Installing. Refer to ⇒ F4.9 ront Air Distribution Door MotorV426 with Front Air Distribution Door Motor Position SensorG642, Removing and Installing”, page 197 .



3 - Bolt

- Quantity: 2
- 1 Nm

4 - Bolt

- Quantity: 3
- 1 Nm

5 - Bolt

- Quantity: 2
- 1 Nm

6 - Temperature Control Door Motor

- To check, use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Manual Climate Control System:

- Temperature Control Door Motor -V68- with Temperature Control Door Motor Position Sensor -G92-
- Removing and Installing. Refer to ⇒ T4.1 emperature Control Door MotorV68 with Temperature Control Door Motor Position SensorG92, Removing and Installing”, page 180 .

Automatic Climate Control System:

- ❑ Left Temperature Control Door Motor -V158- with Left Temperature Control Door Position Sensor -G220-
- ❑ Removing and Installing. Refer to ⇒ L4.4 eft Temperature Control Door MotorV158 with Left Temperature Control Door Motor Position SensorG220, Removing and Installing”, page 186 .

Note

Adjusting the temperature is only possible via the Front A/C Display Control Head 3 -E776- on the Audi TT. Both temperature control door motors (the Left Temperature Control Door Motor -V158- and the Right Temperature Control Door Motor -V159-) are activated together over their wide adjustment range by the Climatronic Control Module -J255- via the characteristic curves stored in the Climatronic Control Module -J255-. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function and refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System”, page 320 .

7 - Operating Lever

- ❑ For warm air door

8 - Heater and A/C Unit

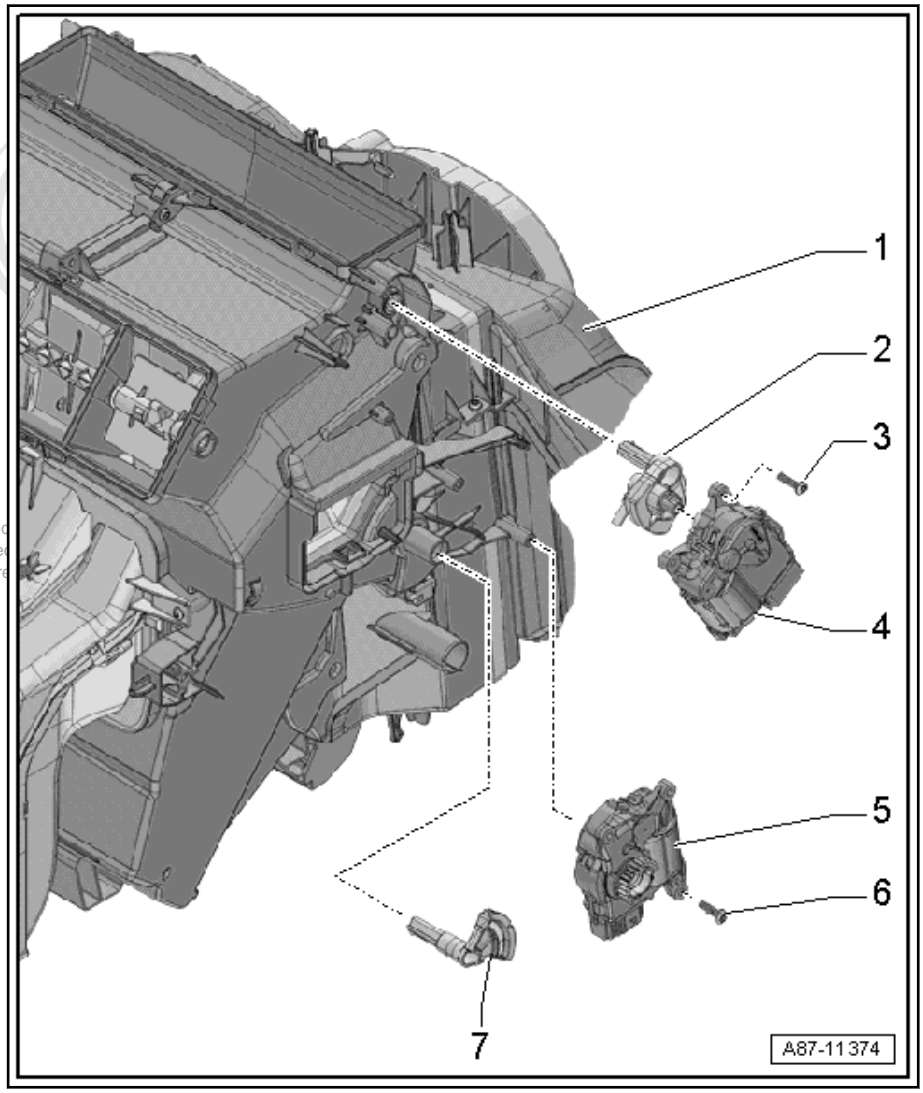
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- ❑ The heater and A/C unit have many components that are the same
- ❑ There are different versions. Refer to ⇒ a3.1 nd A/C Unit Identification”, page 17 .
- ❑ Interchanging components made by different manufacturers is not permitted. Refer to ⇒ a3.1 nd A/C Unit Identification”, page 17 .
- ❑ Overview. Refer to ⇒ a5.11 nd A/C Unit, Disassembling and Assembling”, page 244 .

9 - Defroster and Air Distribution Door Adjuster

- ❑ Removing and Installing. Refer to ⇒ D4.12 istribution Door Adjuster, Removing and Installing”, page 204 .

Overview - Heater and A/C Unit, Right Side Door Control



1 - Heater and A/C Unit

- Overview. Refer to ⇒ a5.11 nd A/C Unit, Disassembling and Assembling", page 244 .

2 - Operating Lever

- For defroster door

3 - Bolt

- Quantity: 2
- 1 Nm

4 - Defroster Door Motor -V107-

- With the Defroster Door Motor Position Sensor -G135-
- Only with an automatic climate control system
- To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Removing and Installing. Refer to ⇒ D4.2 efroster Door MotorV107 with Defroster Door Motor Position SensorG135, Removing and Installing", page 182 .

5 - Right Temperature Control Door Motor -V159-

- With Right Temperature Control Door Position Sensor -G221-
- Only with an automatic climate control system
- To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Removing and Installing. Refer to ⇒ R4.5 ight Temperature Control Door MotorV159 with Right Temperature Control Door Motor Position SensorG221, Removing and Installing", page 188 .

Note

Adjusting the temperature is only possible via the Front A/C Display Control Head 3 -E776- on the Audi TT. Both temperature control door motors (the Left Temperature Control Door Motor -V158- and the Right Temperature Control Door Motor -V159-) are activated together over their wide adjustment range by the Climatronic Control Module -J255- via the characteristic curves stored in the Climatronic Control Module -J255-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Ve-

hicles with Automatic Climate Control System", page 320 .

6 - Bolt

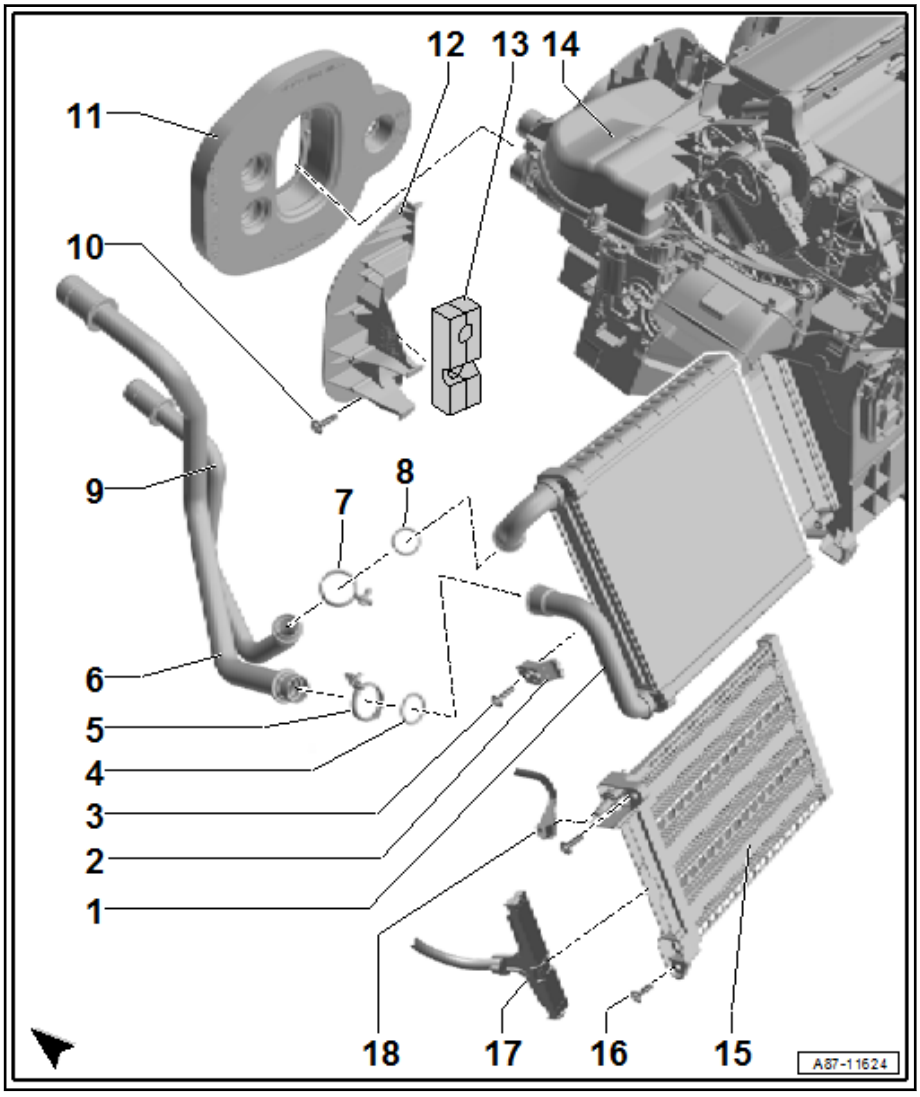
- Quantity: 2
- 1 Nm

7 - Operating Lever

- For warm air door

Overview - Heater and A/C Unit, Heater Core and Auxiliary Heater Heating Element, "Denso"

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1 - Heater Core

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

2 - Bracket

3 - Bolt

- ❑ 2 Nm

4 - O-Ring

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Replacing. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

5 - Screw-Type Clamp

- ❑ Screw tightening specification: 2 Nm

6 - Coolant Pipe for Heater Core

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Coolant Supply from Engine
- ❑ Removing and Installing. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

7 - Screw-Type Clamp

- ❑ Screw tightening specification: 2 Nm

8 - O-Ring

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Replacing. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

9 - Coolant Pipe for Heater Core

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Coolant Return to Engine
- ❑ Removing and Installing. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

10 - Bolt

- ❑ 2 Nm

11 - Foam Spacer

- ❑ For sealing/insulating
- ❑ Note the installation position

12 - Bracket

- ❑ For coolant pipes

13 - Foam

- ❑ For insulating

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- ❑ Note the installation position

14 - Heater and A/C Unit

- ❑ The opening for the auxiliary heater is sealed on vehicles without an Auxiliary Heater Heating Element -Z35-
- ❑ Removing and Installing. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .
- ❑ Disassembling and assembling. Refer to ⇒ a5.11 nd A/C Unit, Disassembling and Assembling", page 244 .

15 - Auxiliary Heater Heating Element -Z35-

- ❑ Activation, Checking. Refer to ⇒ H2.3.2 eater, Checking Activation", page 7 .
- ❑ Removing and Installing. Refer to ⇒ A5.17 uxiliary Heater Heating ElementZ35, Removing and Installing", page 254 .

16 - Bolt

- ❑ Quantity: 2
- ❑ 2 Nm

17 - Wire

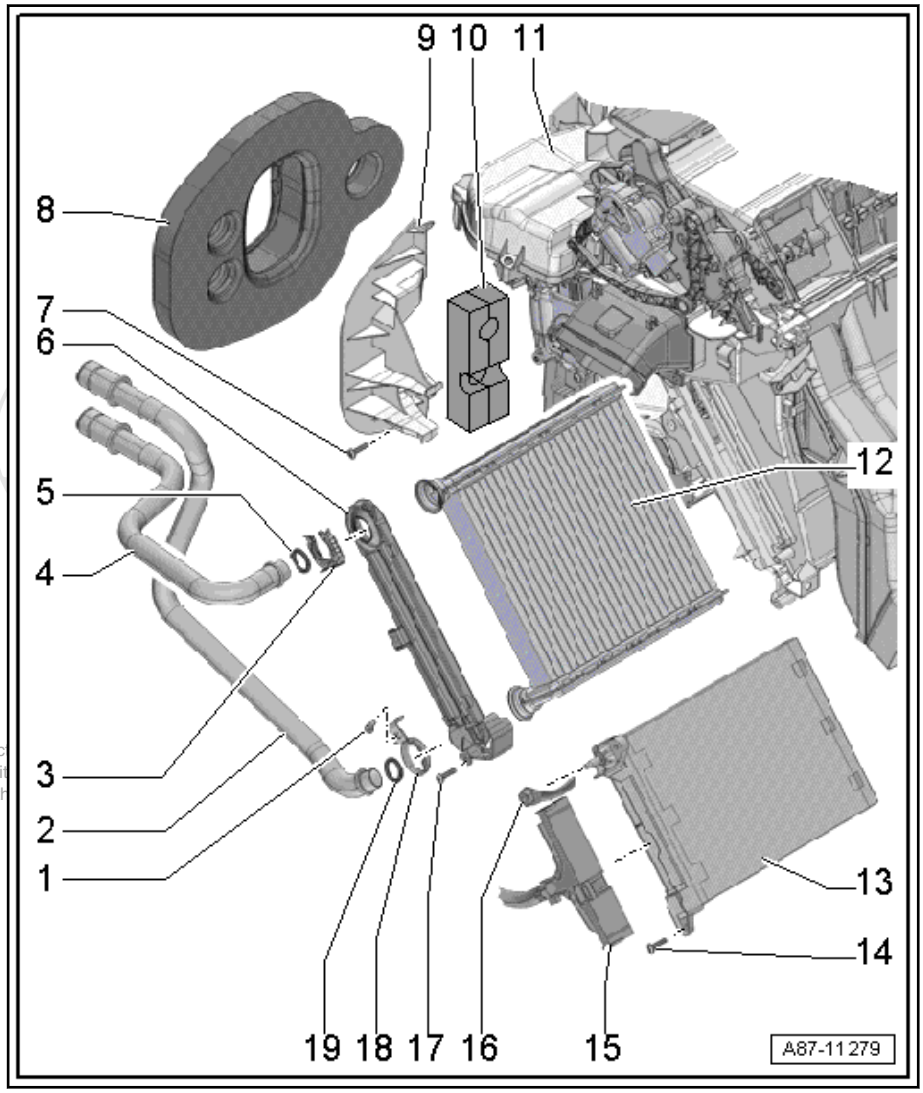
- ❑ For the Auxiliary Heater Heating Element -Z35-
- ❑ Removing and Installing. Refer to ⇒ A5.17 uxiliary Heater Heating ElementZ35, Removing and Installing", page 254 .

18 - Ground Wire

- ❑ For the auxiliary heater
- ❑ Nut 9 Nm

Overview - Heater and A/C Unit, Heater Core and Auxiliary Heater Heating Element, "Valeo"

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1 - Bolt

- ❑ 2 Nm

2 - Coolant Pipe for Heater Core

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Coolant Supply from Engine
- ❑ Removing and Installing. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

3 - Clip

- ❑ Can be replaced with a hose clamp when servicing.

4 - Coolant Pipe for Heater Core

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Coolant Return to Engine
- ❑ Removing and Installing. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

5 - O-Ring

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Replacing. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

6 - Cover

- ❑ For the heater core

7 - Bolt

- ❑ 2 Nm

8 - Foam Spacer

- ❑ For sealing/insulating
- ❑ Note the installation position

9 - Bracket

- ❑ For coolant pipes

10 - Foam

- ❑ For insulating
- ❑ Note the installation position

11 - Heater and A/C Unit

- ❑ The opening for the auxiliary heater is sealed on vehicles without an Auxiliary Heater Heating Element -Z35-
- ❑ Removing and Installing. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .

- ❑ Disassembling and assembling. Refer to ⇒ a5.11 nd A/C Unit, Disassembling and Assembling", page 244 .

12 - Heater Core

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

13 - Auxiliary Heater Heating Element -Z35-

- ❑ Activation, Checking. Refer to ⇒ H2.3.2 eater, Checking Activation", page 7 .
- ❑ Removing and Installing. Refer to ⇒ A5.17 uxiliary Heater Heating ElementZ35, Removing and Installing", page 254

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14 - Bolt

- ❑ Quantity: 2
- ❑ 2 Nm

15 - Wire

- ❑ For the Auxiliary Heater Heating Element -Z35-
- ❑ Removing and Installing. Refer to ⇒ A5.17 uxiliary Heater Heating ElementZ35, Removing and Installing", page 254 .

16 - Ground Wire

- ❑ For the auxiliary heater
- ❑ Nut 9 Nm

17 - Bolt

- ❑ Quantity: 3
- ❑ 2 Nm

18 - Screw-Type Clamp

19 - O-Ring

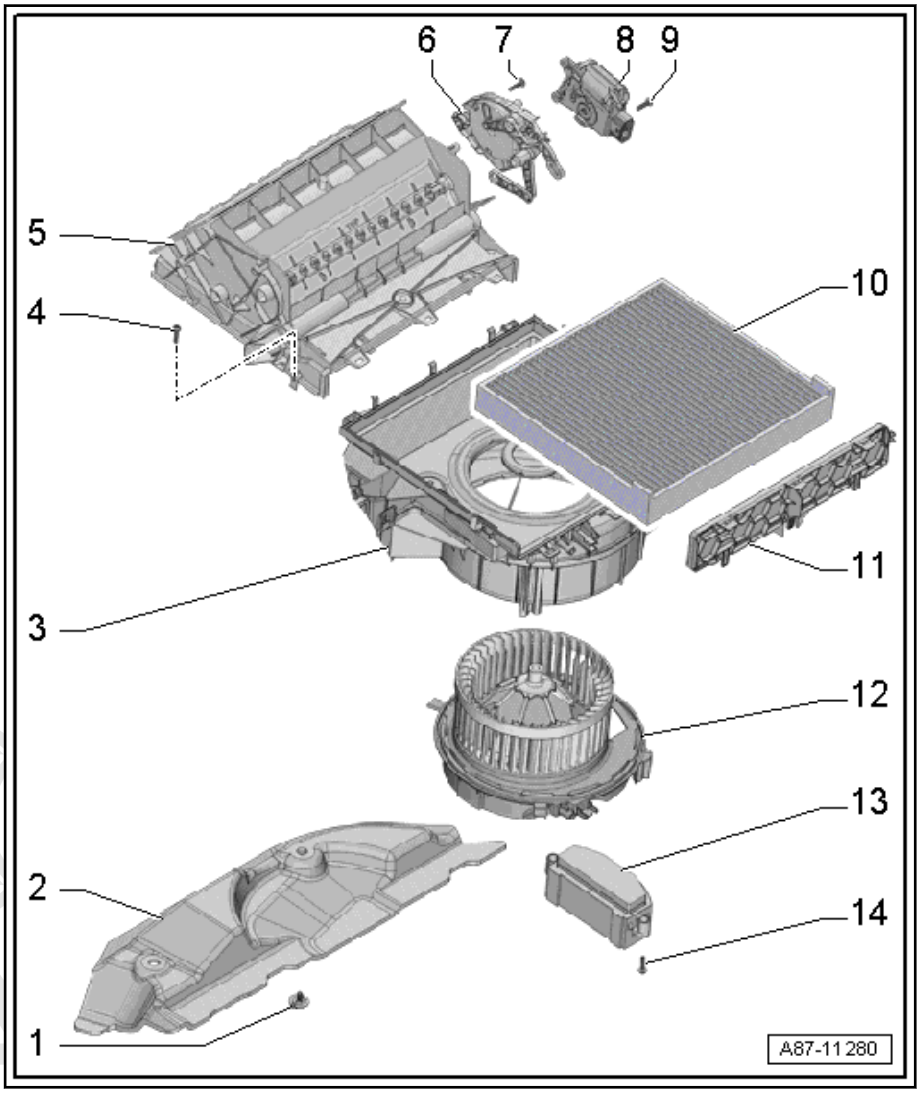
- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Replacing. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

5.2 Overview - Attachments for Heater and A/C Unit and Air Intake Housing

Note

- *There are different versions and manufacturers of the heater and A/C units. At the start of production, only "Denso" heater and A/C units are being installed on the Audi TT. Heater and A/C units of other manufacturers may also installed at a later date. Individual components of the different heater and A/C units are similar but not the same. Interchanging components from different manufacturers is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Heater and A/C unit characteristics of other manufacturers. Refer to ⇒ a3.1 nd A/C Unit Identification", page 17 .*

The overview shows a LHD vehicle as an example. The component layout is a mirror image for RHD vehicles.



1 - Screw/Clip

- ❑ Quantity: 2
- ❑ Screw tightening specification: 1 Nm

2 - Cover

3 - Housing Upper Section

4 - Bolt

- ❑ Quantity: 2
- ❑ 1 Nm

5 - Air Intake Duct

- ❑ With fresh air and air recirculation door
- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ I6.4 ntake Duct, Removing and Installing", page 298 .
- ❑ Do not disassemble

6 - Fresh Air and Air Recirculation Door Adjuster

- ❑ Only with an automatic climate control system
- ❑ Removing and Installing. Refer to ⇒ A4.7 ir/Recirculating Air/Back Pressure Door Adjuster, Removing and Installing", page 192 .

7 - Bolt

- ❑ Only with an automatic climate control system
- ❑ Quantity: 2
- ❑ 1 Nm

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8 - Actuator

- ❑ To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Manual Climate Control System:

- ❑ Recirculation Door Motor -V113- without position sensor; with end switches in the end stops. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Removing and Installing. Refer to ⇒ R4.3 ecirculation Door MotorV113, Removing and Installing", page 185 .

Automatic Climate Control System:

- ❑ Fresh Air/Recirculating Air/Back Pressure Door Motor -V425- with Fresh Air/Recirculating Air/Back Pressure Door Motor Position Sensor -G644-
- ❑ Removing and Installing. Refer to ⇒ F4.6 resh Air/Recirculating Air/Back Pressure Door MotorV425 with Fresh Air/Recirculating Air/Back Pressure Door Motor Position SensorG644, Removing and Installing", page 190 .

9 - Bolt

- ❑ Quantity: 2
- ❑ 1 Nm

10 - Dust and Pollen Filter

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Replacement interval. Refer to ⇒ Maintenance Tables.
- ❑ Removing and Installing. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247 .

11 - Cover

- ❑ For dust and pollen filter

12 - Fresh Air Blower -V2-

- ❑ To check, use the Vehicle Diagnostic Tester ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Removing and Installing. Refer to ⇒ F5.15 resh Air Blower Control ModuleJ126, Removing and Installing", page 252 .

13 - Fresh Air Blower Control Module -J126-

- ❑ To check, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ Removing and Installing. Refer to ⇒ F5.15 resh Air Blower Control ModuleJ126, Removing and Installing", page 252 .

14 - Bolt

- ❑ Quantity: 2
- ❑ 1 Nm

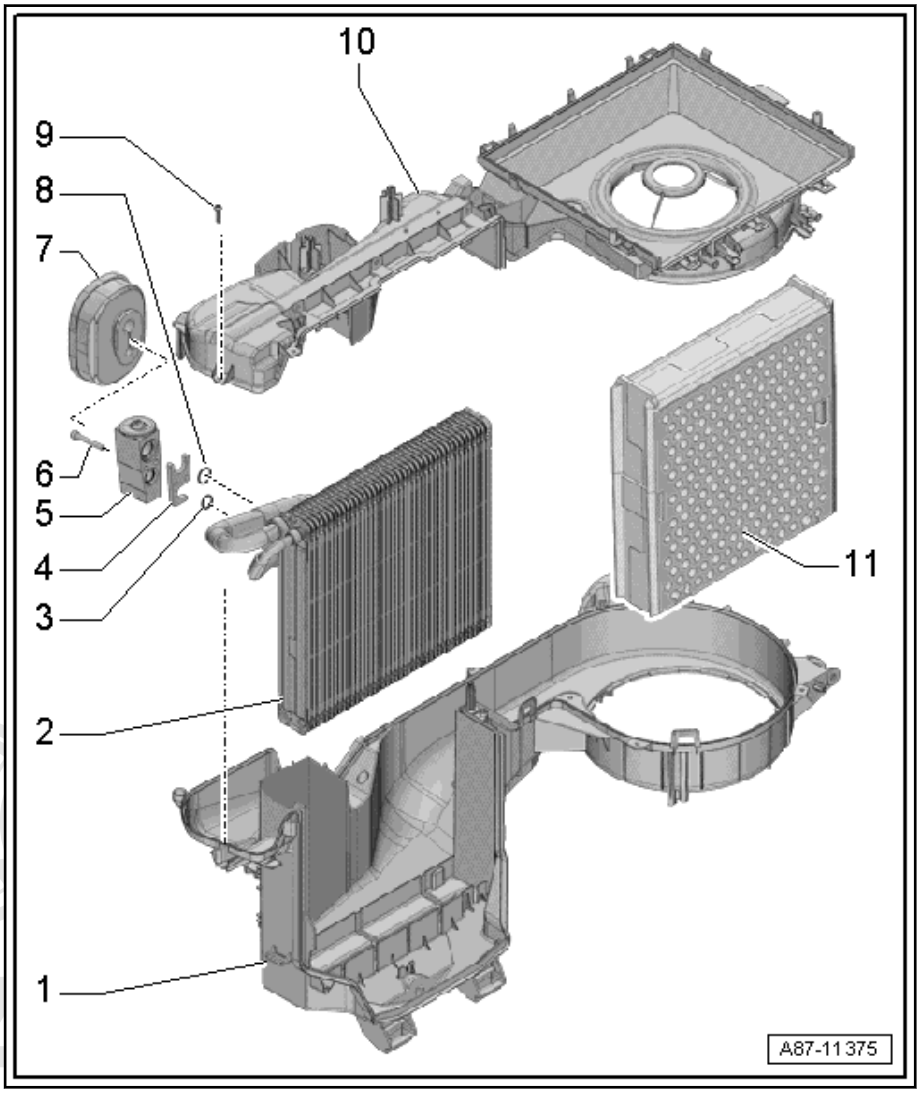
5.3 Overview - Evaporator Housing

Note

- *There are different versions and manufacturers of the heater and A/C units. At the start of production, only "Denso" heater and A/C units are being installed on the Audi TT. Heater and A/C units of other manufacturers may also installed at a later date. Individual components of the different heater and A/C units are similar but not the same. Interchanging components from different manufacturers is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Heater and A/C unit characteristics of other manufacturers. Refer to ⇒ a3.1 nd A/C Unit Identification", page 17.*

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The overview shows a LHD vehicle as an example. The component layout is a mirror image for RHD vehicles.



1 - Evaporator Housing Lower Section

2 - Evaporator

- ❑ Only with A/C system
- ❑ Check the foam seals for damage and that they are correctly bonded
- ❑ Removing and Installing. Refer to ⇒ R5.5 emoving and Installing", page 227 .

3 - O-Ring

- ❑ Replace. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.
- ❑ Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

4 - Retaining Plate

- ❑ Only with A/C system
- ❑ For securing the refrigerant line and fastening the expansion valve

5 - Expansion Valve

- ❑ Only with A/C system
- ❑ Overview. Refer to ⇒ -2.2 Condenser, A/C Compressor, Refrigerant Lines and Expansion Valve", page 105 .

6 - Bolt

- ❑ Only with A/C system
- ❑ Tightening specification ⇒ Item 23 (page 112) .

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7 - Seal/Insulation

- ❑ Expansion valve heat insulation
- ❑ The seal for the plenum chamber rear panel does not have an opening for the expansion valve or it is sealed with a foam body on vehicles without an A/C system.

8 - O-Ring

- ❑ Only with A/C system
- ❑ Replace. Refer to the ⇒ Electronic Parts Catalog (ETKA) for the version.
- ❑ Coat with refrigerant oil before installing. Refer to ⇒ S4.10 ealing Rings", page 58 .

9 - Bolt

- ❑ Quantity: 8
- ❑ 1.5 Nm

10 - Evaporator Housing Upper Section

11 - Honeycomb

- ❑ Only installed on vehicles with heating (without an A/C system)

5.4 Overview - Air Distribution Housing Doors and Separators

Front View. Refer to ⇒ page 222 .

Rear View. Refer to ⇒ page 225 .

Front View

Note

- *Arrow = direction of travel*
- *Refer to ⇒ -5.1 Heater and A/C Unit", page 209* .

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1 - Right Warm Air Door

- ❑ From the heater core
- ❑ Activated via the right cold air door

2 - Operating Lever

- ❑ For door control

3 - Right Cold Air Door

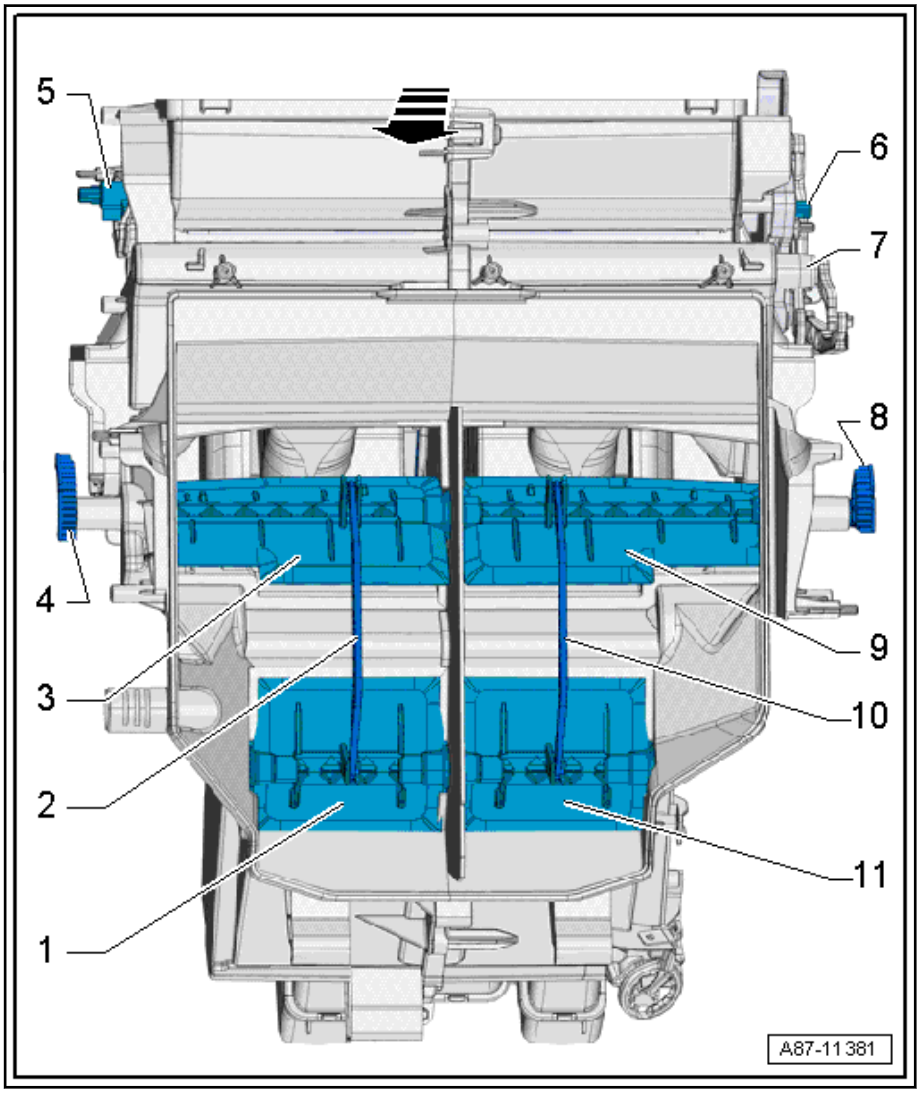
- ❑ From the evaporator
- ❑ There are different versions.

Heater and manual climate control system

- ❑ Activated together with the left cold air door shaft by the Temperature Control Door Motor -V68- via the left operating lever

Automatic Climate Control System

- ❑ Activated by the Right Temperature Control Door Motor -V159- via the right operating lever.



Note

Adjusting the temperature is only possible via the Front A/C Display Control Head 3 -E776- on the Audi TT. Both temperature control door motors (the Left Temperature Control Door Motor -V158- and the Right Temperature Control Door Motor -V159-) are activated together over their wide adjustment range by the Climatronic Control Module -J255- via the characteristic curves stored in the Climatronic Control Module -J255-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .

4 - Right Operating Lever for Temperature Control Door

- ❑ Equipped on some models
- ❑ Only automatic climate control system
- ❑ Activated by the Right Temperature Control Door Motor -V159-

Note

Adjusting the temperature is only possible via the Front A/C Display Control Head 3 -E776- on the Audi TT. Both temperature control door motors (the Left Temperature Control Door Motor -V158- and the Right Temperature Control Door Motor -V159-) are activated together over their wide adjustment range by the Climatronic Control Module -J255- via the characteristic curves stored in the Climatronic Control Module -J255-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .

5 - "Defroster" Door Operating Lever

- ❑ For the windshield and door windows
- ❑ Equipped on some models
- ❑ Only automatic climate control system
- ❑ Activated by the Defroster Door Motor -V107-

6 - "Defroster" Door Operating Lever

- ❑ For the windshield and door windows
- ❑ Equipped on some models
- ❑ Only heater and manual climate control system
- ❑ Activated by the Air Distribution Door Motor -V428- via the defrost and air distribution adjuster

7 - Air Distribution Door Operating Lever

Heater and manual climate control system

- ❑ Activated by the Air Distribution Door Motor -V428- via the defrost and air distribution adjuster

Automatic Climate Control System

- ❑ Activated by the Front Air Distribution Door Motor -V426- via the defrost and air distribution adjuster

8 - Left Operating Lever

Heater and manual climate control system

- ❑ Activated by the Temperature Control Door Motor -V68-

Automatic Climate Control System

- ❑ Activated by the Left Temperature Control Door Motor -V158-

9 - Left Cold Air Door

- ❑ From the evaporator
- ❑ There are different versions.

Heater and manual climate control system

- ❑ Activated by the Temperature Control Door Motor -V68- via the left operating lever.

Automatic Climate Control System

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- ❑ Activated by the Left Temperature Control Door Motor -V158- via the left operating lever.

Note

Adjusting the temperature is only possible via the Front A/C Display Control Head 3 -E776- on the Audi TT. Both temperature control door motors (the Left Temperature Control Door Motor -V158- and the Right Temperature Control Door Motor -V159-) are activated together over their wide adjustment range by the Climatronic Control Module -J255- via the characteristic curves stored in the Climatronic Control Module -J255-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .

10 - Operating Lever

- ❑ For door control

11 - Left Warm Air Door

- ❑ From the heater core
- ❑ Activated via the left cold air door

Note

Adjusting the temperature is only possible via the Front A/C Display Control Head 3 -E776- on the Audi TT. Both temperature control door motors (the Left Temperature Control Door Motor -V158- and the Right Temperature Control Door Motor -V159-) are activated together over their wide adjustment range by the Climatronic Control Module -J255- via the characteristic curves stored in the Climatronic Control Module -J255-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .

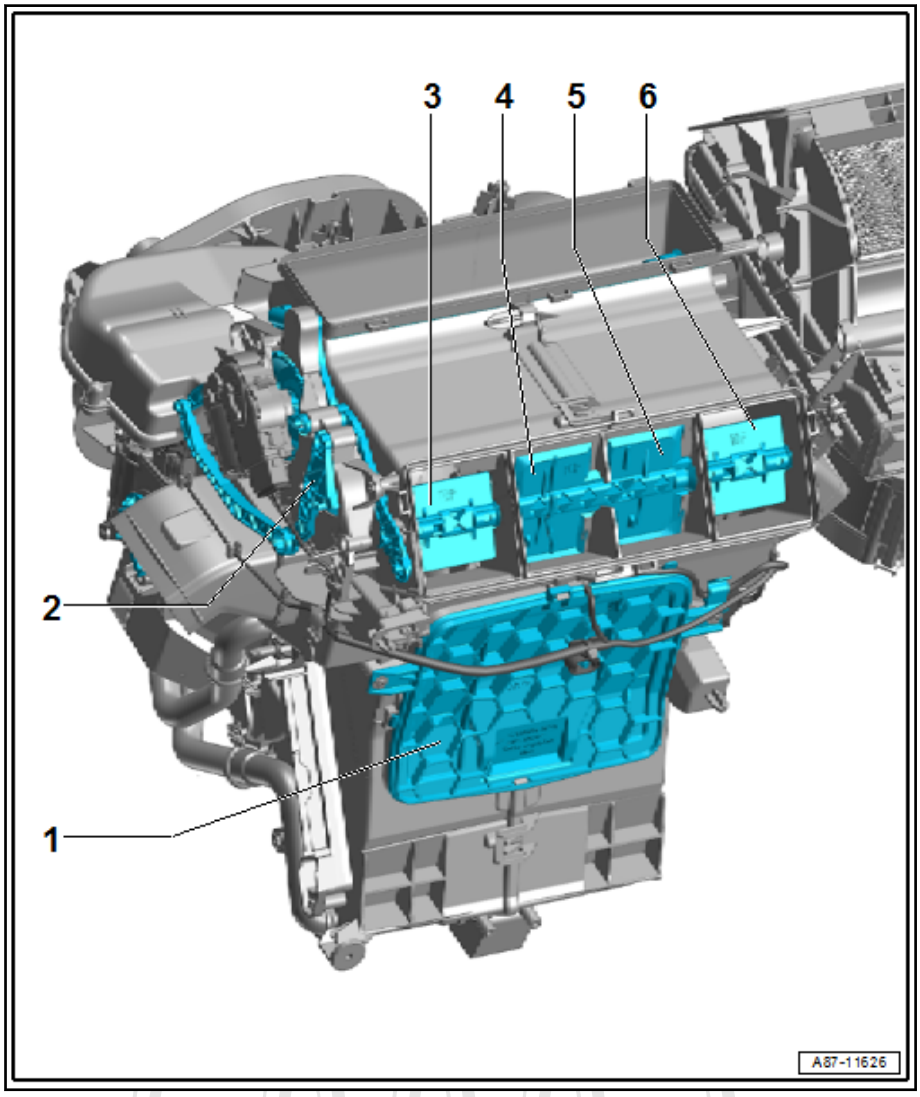
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Rear View

Note

- *-Arrow-= direction of travel*
- *Refer to ⇒ -5.1 Heater and A/C Unit", page 209 .*

1 - Cover



Note

There are currently no air ducts installed in the center console and in the rear footwell on the Audi TT (like on the Audi A3, for example). These openings in the heater and A/C unit are therefore sealed off by a cover.

2 - Operating Lever

- For operating the vent doors
- Activated via the adjuster

3 - Left Door for Left Instrument Panel Vent

4 - Left Door for Center Instrument Panel Vent

5 - Right Door for Right Instrument Panel Vent

6 - Right Door for Center Instrument Panel Vent

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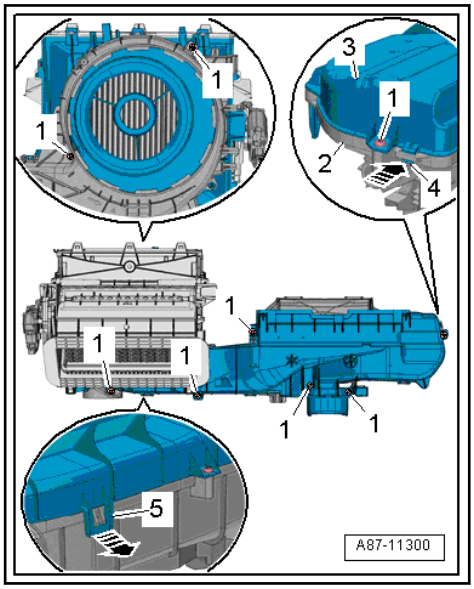
5.5 Evaporator, Removing and Installing

Note

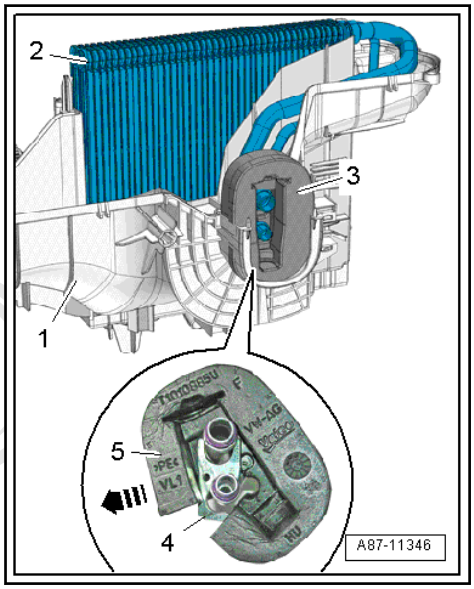
Certain tools are required to discharge the refrigerant circuit. These work procedures may only be performed by trained personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

Removing

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- Remove the heater and A/C unit. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .
- Remove the Fresh Air Blower -V2-. Refer to ⇒ F5.14 resh Air BlowerV2, Removing and Installing", page 250 .
- Remove the air intake duct. Refer to ⇒ I6.4 ntake Duct, Removing and Installing", page 298 .
- Remove the bolts -1-.
- Release the tabs -4 and 5- in the direction of -arrows-.
- Remove the evaporator housing upper section -3- from the lower section -2-.
- Remove the evaporator -2- from the evaporator housing lower section -1-.



– Remove the expansion valve. Refer to ⇒ V2.6 alve, Removing and Installing”, page 120 .
– Remove the seal/insulation -3- by pulling the moving part -5- to the side in the direction of -arrow-.
– Remove the retainer -4- for the refrigerant lines.

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Installing

Install in the reverse order of removal while noting the following:

- Tightening specification. Refer to ⇒ -5.3 Evaporator Housing”, page 220 .

Note

The smallest leaks at the groove/spring joint between the upper and lower sections of the evaporator housing can lead to whistling noises due to escaping air. Lightly coat the connection points with silicone grease, for example. Silicone grease. Refer to the ⇒ Electronic Parts Catalog (ETKA).

– Evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.
– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit”, page 150 .
– Install the remaining components.
– Check the DTC memory and erase any displayed entries, then perform the “basic setting”. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
– Check the heating and A/C system function.

5.6 Evaporator, Cleaning

⇒ C5.6.1 leaning with Ultrasound A/C Cleaner", page 229

⇒ C5.6.2 leaning with Suction Feed Spray GunV.A.G 1538 and Spray Lance", page 231

5.6.1 Evaporator, Cleaning with Ultrasound A/C Cleaner

Special tools and workshop equipment required

- Ultrasound A/C Cleaner -VAS 6189B- (Refer to ⇒ Electronic Parts Catalog (ETKA) for currently available ultrasound cleaners)
- Ultrasound A/C Cleaner - Airco-Clean Fluid -VAS 6189/1-
- Suction Nozzle With Brush -VAS 6288-
- Commercially Available Vacuum Cleaner

Procedure

– Check whether the odor is actually originating from the A/C unit evaporator by switching from fresh air to recirculating air mode. Refer to ⇒ i2.2 n Vehicles with A/C System Information", page 5 .

– Check the plenum chamber water drain and clean if necessary. Refer to ⇒ C6.9 hamber Water Drain, Checking", page 309 .

– Remove the dust and pollen filter. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247 .

– Clean the installation slot for the dust and pollen filter.

– Seal off the opening on the A/C unit for the dust and pollen filter.

– Start the engine.

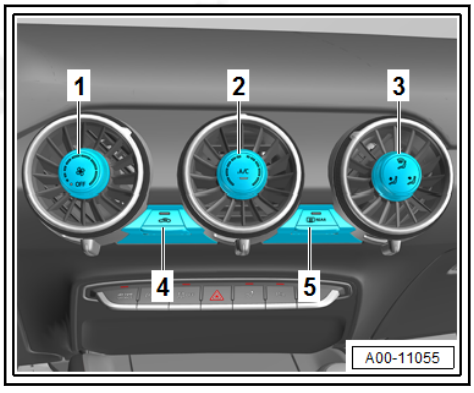
– Close the windows, sliding sunroof and rear lid.

– Open all instrument panel vents.

Vehicles with Manual Climate Control System:

– Adjust the following settings on the A/C system control heads:

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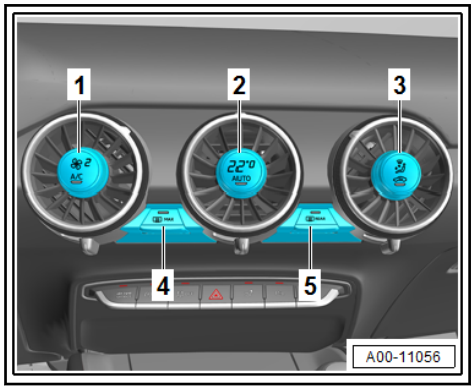
Note

This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.

- A/C compressor off: The indicator lamp in the A/C button (in regulator -2-) does not come on.
- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “cold” stop.
- Recirculating air mode on: The indicator lamp in the Fresh Air and Recirculating Air Mode Button -E781- -4- illuminates.
- Turn the fresh air blower regulator -1- (Front A/C Display Control Head 2 -E775-) to the lowest possible speed (the fresh air blower can still be heard running).
- Turn the regulator -3- (Front A/C Display Control Head 4 -E777-) for air distribution to “instrument panel vent”.

Vehicles with Automatic Climate Control System:

– Adjust the following settings on the A/C system control heads:



Note

- *This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.*
- *The information in the regulators -1, 2 and 3- is only displayed when the ignition is switched on and goes out when the ignition is switched off.*

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- A/C compressor off: The indicator lamp in the A/C button (in regulator -1-) does not come on.
- “Auto” mode on: The indicator lamp in the Auto button (in the regulator -2-) illuminates.
- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “cold” stop.
- Turn the regulator -3- (Front A/C Display Control Head 4 -E777-) for air distribution to “instrument panel vent”.
- Recirculating air mode on: The indicator lamp for “recirculating air mode” in the Recirculation button (in the regulator -3-) illuminates.

- Turn the fresh air blower regulator -1- (Front A/C Display Control Head 2 -E775-) to the lowest possible speed (setting 1, the fresh air blower can still be heard running).
- Defrost mode off: the indicator lamp in the Defrost Button -E782- -4- does not come on.

Continuation for All Vehicles:

– Shake the bottle of Ultrasound A/C Cleaner - Airco-Clean Fluid -VAS 6189/1- and pour it into the Ultrasound A/C Cleaner -VAS 6189B-.

Note

Using the ultrasound A/C cleaner. Refer to the ⇒ Ultrasound A/C Cleaner -VAS 6189B- Owner's Manual.

– Place the Ultrasound A/C Cleaner -VAS 6189B- in the front passenger footwell.

– Start the Ultrasound A/C Cleaner -VAS 6189B- (according to the operating instructions) and route the accompanying outlet hose so the vapor escaping via the A/C unit recirculated air opening (in the front passenger footwell behind the glove compartment) is drawn in by the Fresh Air Blower -V2-.

– Close the vehicle doors.

Note

The cleaning procedure lasts 15 to 20 minutes. It is complete when vapor no longer comes out of the outlet hose of the Ultrasound A/C Cleaner -VAS 6189B-.

– Switch off the Ultrasound A/C Cleaner -VAS 6189B-.

– Open the vehicle doors and air out the vehicle for at least 10 minutes.

– Remove the Ultrasound A/C Cleaner -VAS 6189B- from the vehicle and clean it.

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

– Install the dust and pollen filter. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247 .

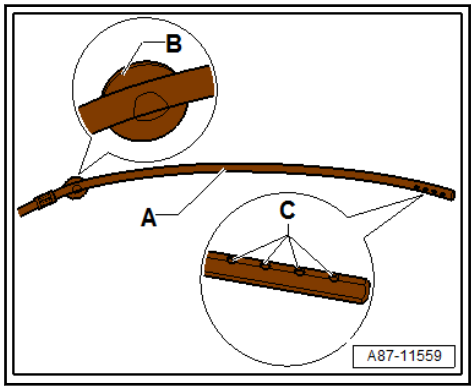
5.6.2 Evaporator, Cleaning with Suction Feed Spray Gun -V.A.G 1538- and Spray Lance

Special tools and workshop equipment required

♦ Suction Feed Spray Gun -V.A.G 1538- (Refer to ⇒ Electronic Parts Catalog (ETKA) for currently available suction feed spray guns)

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- Suction Feed Spray Gun - Probe for Evaporator (Straight) -V.A.G 1538/5- -A- (short version approximately 500 mm, bent to specification for this vehicle, or Suction Feed Spray Gun - Probe -VAS1538/9-. For probes that can be delivered currently, refer to the ⇒ Electronic Parts Catalog (ETKA)).



- Cleaning Solution for A/C System Evaporator “D 600 100 A2” (for cleaning fluids that can currently be delivered, refer to the ⇒ Electronic Parts Catalog (ETKA))
- Suction Nozzle With Brush -VAS 6288-
- Commercially Available Vacuum Cleaner

WARNING

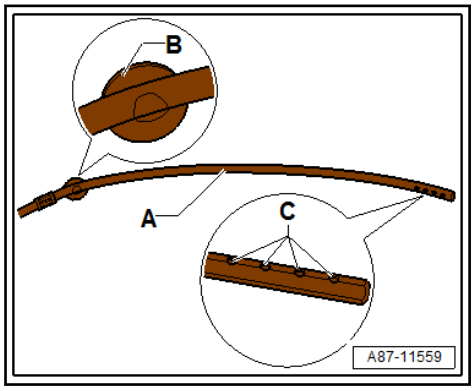
A/C unit may be contaminated by other substances

- ***Only use a suction feed spray gun and a spray lance that were not already used with other fluids.***

Note

- *The vacuum cleaner is only necessary if there is dirt in the plenum chamber or in the A/C intake shroud, or if dirt has gotten into the evaporator housing through the dust and pollen filter.*
- *The Suction Nozzle With Brush -VAS 6288- is only necessary if dirt has gotten into the evaporator housing through the dust and pollen filter.*
- *It is recommended to have several short and long spray lances, since they are used either in their straight form, or must be bent to different degrees for various vehicles (or they are already bent). Repeatedly changing the form of the spray lance will damage it and is therefore not advisable.*

Recommended bend radius of the Suction Feed Spray Gun - Probe for Evaporator (Straight) -VAG1538/5- -A- for this vehicle.



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Note

- *The guide washer -B- is attached opposite of the spray lance holes -C-. This also allows the spray direction to be recognized when the spray lance is inserted.*
- *The Suction Feed Spray Gun - Probe for Evaporator (Straight) -VAG1538/5- -A- with this bend radius is also suitable for the following vehicles, for example: Audi A1 from MY 2011, Audi A3 from MY 2013, Audi A4 from MY 2008, Audi A5 from MY 2008, Audi Q5 from MY 2009, Audi A6 from MY 2011, Audi A7 from MY 2011 and Audi A8 from MY 2010.*

Preliminary Work. Refer to

– Switch the ignition on.

– Open all instrument panel vents.

– Switch the A/C system on.

– Check whether the odor is actually originating from the A/C unit evaporator by switching from fresh air to recirculating air mode. Refer to ⇒ i2.2 n Vehicles with A/C System Information", page 5 .

Note

- *The cause or the location of the odor must be determined before cleaning the evaporator.*
- *Even if the odor is not caused by the evaporator (for example, the dust and pollen filter is dirty), it is advisable to clean the evaporator after eliminating the cause (the evaporator absorbs odors via the air flowing by).*

– Set the A/C system to recirculating air mode.

– Switch off the ignition (the A/C system and Fresh Air Blower -V2- switches off with it).

– Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments and Covers; Glove Compartment, Removing and Installing.

– Remove the Fresh Air Blower -V2-. Refer to ⇒ F5.15 resh Air Blower Control ModuleJ126, Removing and Installing", page 252 .

– Remove and check the dust and pollen filter. Replace it if necessary after cleaning the evaporator. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247 .

Note

Replacing a dirty dust and pollen filter is recommended after each cleaning.

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– Check the area between the dust and pollen filter and the installation slot for the Fresh Air Blower -V2- in the evaporator housing for contamination and clean if necessary. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247 .

– Check the plenum chamber and the plenum chamber water drain and clean them if necessary. Refer to ⇒ C6.9 hamber Water Drain, Checking", page 309 .

Note

The water drains in the plenum chamber must be checked according to the repair manual before starting to clean. Clean them if necessary.

– Place a drip tray under the vehicle to collect the cleaning fluid that is draining out via the condensation water drain (for the outlet opening layout for the condensation water drain, refer to ⇒ W5.20 ater Drain Hose, Checking", page 273).
– Cover the carpet in the front passenger footwell with a liquid-tight foil and absorbent paper.

Evaporator, Cleaning

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WARNING

The cleaning solution is combustible. Vapors may form an explosive mixture with the air.

- *Keep any ignition sources away and do not smoke.*
- *Only work with the cleaning solution in well-ventilated areas.*

Cleaning solution may pose a health risk.

Protect eyes by wearing protective eyewear.

- *Use safety equipment, such as protective eyewear and gloves.*
- *Keep an eye bath on hand.*
- *If the cleaning solution has come in contact with the eyes, flush them thoroughly with cool or lukewarm water for 15 minutes.*
- *Then apply eye drops and consult a doctor immediately even if no pain is felt.*
- *Inform the doctor which cleaning solution has gotten into the eyes.*

Protect hands by wearing rubber gloves.

- *Use safety equipment, such as protective eyewear and gloves.*
- *If liquid cleaning solution has come in contact with the hands or skin, clean them with soap and water and rinse thoroughly.*

Do not breathe in the cleaning fluid vapors and do not ingest any cleaning fluid.

- *Only work with the cleaning solution in well-ventilated areas.*
- *If any liquid cleaning solution was ingested, do not induce vomiting. Consult a doctor immediately.*
- *Inform the doctor which cleaning solution was ingested.*

Caution

Risk of damaging the vehicle by the cleaning fluid

- *Avoid getting any fluid on the electronic components.*
- *Do not spray the cleaning fluid into the air ducts leading to or in the vehicle interior.*
- *If vehicle interior components have come in contact with the cleaning fluid, they must be thoroughly cleaned.*

- The ignition (along with the A/C system) is switched off.
- The preliminary work was performed and the specified components are removed. Refer to ⇒ page 233 .

– Fill the suction feed spray gun with the attached spray lance with one liter of cleaning solution for the A/C system evaporator.

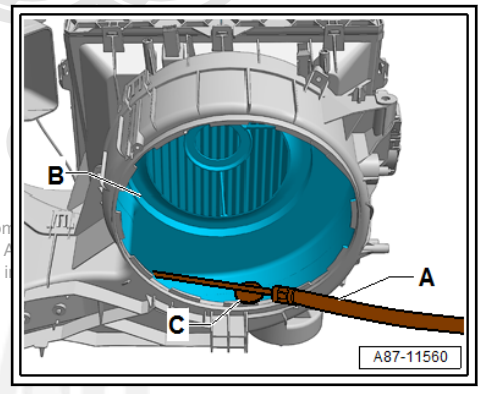
– Set a pressure of approximately 7.5 bar (108.78 psi) on the compressed air supply for the suction feed spray gun (minimum pressure: 5 bar (72.52 psi)/maximum pressure: 10 bar (145.04 psi)).

Note

This compressed air supply pressure results in a working pressure of 3.5 to 4.5 bar (50.76 to 65.27 psi) at the spray lance.

– Connect the Suction Feed Spray Gun -VAG1538- to the compressed air supply.

– Guide the spray lance -A- over the opening for the removed Fresh Air Blower -V2- -B- and into the evaporator housing with the spray direction toward the evaporator.



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Note

The guide washer -C- for the spray lance -A- secures the spray direction.

Caution

No cleaning fluid must flow into the vehicle interior from the A/C unit evaporator housing when cleaning.

- *Cover the area under the spray lance in the evaporator housing with absorbent paper.*
- *After spraying approximately 0.1 to 0.2 liters of cleaning fluid, check that the fluid is actually draining into the drip tray under the vehicle via the condensation water drain. The condensation water drain must be cleaned before continuing the cleaning procedure if the fluid is only dripping out. Refer to ⇒ W5.20 ater Drain Hose, Checking", page 273 .*

– Clean and flush the evaporator and the surrounding housing with cleaning solution by operating the metering lever on the suction feed spray gun and moving the spray lance -A- back and forth.

Note

- *The contaminate-heavy cleaning fluid flows out via the condensation water drain.*
- *The drainage of the cleaning fluid via the condensation water drain must be monitored during the cleaning procedure.*

– Spray the entire contents of the suction feed spray gun for cleaning the evaporator.

– Remove the drip tray and dispose of the collected cleaning solution.

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Note

Used cleaning solution can be disposed of, for example, via the wastewater disposal (observe the local governmental regulations).

Allow the cleaning solution to work for at least 30 minutes.

Note

The removed components can be reinstalled at this time.

– Reinstall all of the removed components.

– Open all of the doors or windows.

– Open all of the air vents on the instrument panel and in the vehicle.

– Switch on the ignition.

– Set the airflow direction to all vents on the A/C system control head.

– Set the maximum speed for the Fresh Air Blower -V2- on the A/C system control head.

– Then start the engine and switch on the A/C system (the indicator lamp in the A/C button illuminates).

– Allow the A/C system to run at this setting for approximately 10 minutes (the A/C compressor is switched on). At the same time, switch the selected vent temperature back and forth between cold and warm several times on the A/C system control head.

5.7 Evaporator Vent Temperature Sensor -G263-, Removing and Installing

Removing

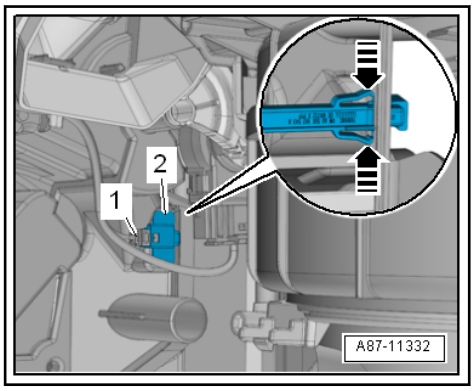
LHD vehicle

– Remove the footwell vent on the front passenger side. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

RHD vehicles

– Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

Continuation for All Vehicles



– Release the retaining tabs with a small screwdriver in the direction of -arrows-.
– Remove the Evaporator Vent Temperature Sensor -G263- -item 2- from the housing.
– Disconnect the connector -1-.

Installing

Install in reverse order of removal.

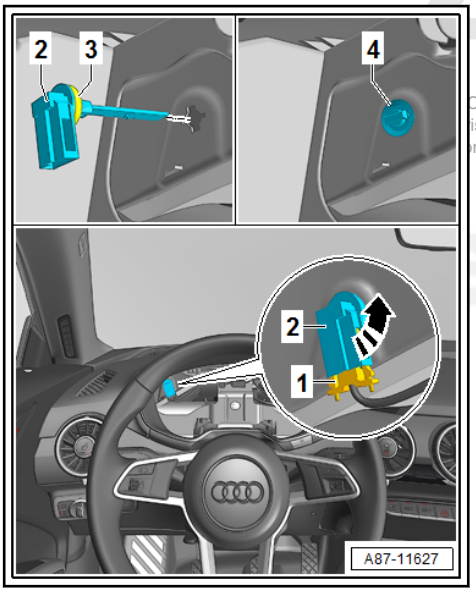
– Install the remaining components.
– Check the DTC memory and erase any displayed entries, then perform the "basic setting". Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
– Check the heating and A/C system function.

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5.8 Left Vent Temperature Sensor -G150-/ Right Vent Temperature Sensor -G151-, Removing and Installing

Note

A Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-) -2- is only installed on vehicles with an automatic climate control system. If there is no Left Vent Temperature Sensor -G150- (or Right Vent Temperature Sensor -G151-) installed, the opening in the air duct is sealed off with a plug -4-.



- *There is no vent temperature sensor installed on vehicles with a manual climate control system. The opening in the respective air duct is sealed off with a plug -4-.*
- *The designation and the component location of the vent temperature sensors (Left Vent Temperature Sensor -G150- and Right Vent Temperature Sensor -G151-) is different. The Left Vent Temperature Sensor -G150- is installed in the air duct to the left instrument panel vent on LHD vehicles. The Right Vent Temperature Sensor -G151- is installed in the air duct to the right instrument panel vent on RHD vehicles (not illustrated).*

Removing

– Remove the instrument cluster. Refer to ⇒ Electrical Equipment; Rep. Gr. 90; Instrument Cluster; Overview - Instrument Cluster.

– Turn the vent temperature sensor -2- counterclockwise -arrow- and remove it from the mount.

– Disconnect the connector -1-.

Installing

Install in the reverse order of removal while noting the following:

– Replace the seal -3- if it is damaged or faulty.

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Note

An improperly installed vent temperature sensor or a damaged seal causes flow-generated noise.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries, then perform the “basic setting”. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

– Check the heating and A/C system function.

5.9 Heater and A/C Unit, Removing and Installing

Note

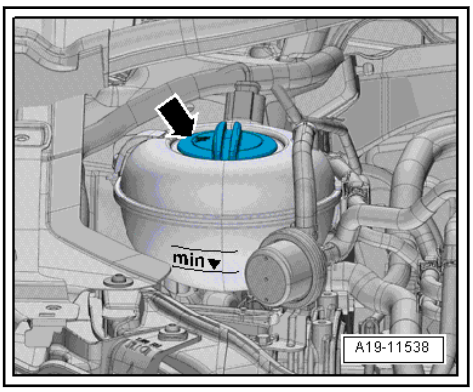
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Certain tools are required to discharge the refrigerant circuit. These work procedures may only be performed by trained personnel. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) and ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

Special tools and workshop equipment required

- Hose Clamps - Up To 25 mm -3094-
- Engine Bung Set -VAS 6122-
- Commercially available compressed air gun

Removing



WARNING

There is a risk of scalding due to hot steam and hot coolant.

- ***The cooling system is under pressure when the engine is warm.***
- ***To reduce the pressure, cover the coolant reservoir cap with cloths and then open it carefully.***

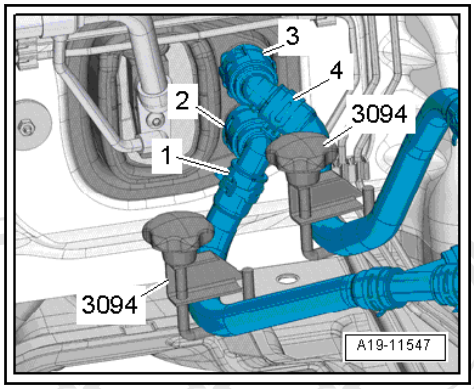
– Open the coolant reservoir cap -arrow-.

– Discharge the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refriger-

ant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.

– Disconnect the refrigerant line with inner heat exchanger from the expansion valve. Refer to ⇒ L2.10 ines with Inner Heat Exchanger, Removing and Installing", page 139 .

– Mark the installation position of the coolant hoses -1 and 4-.



Note

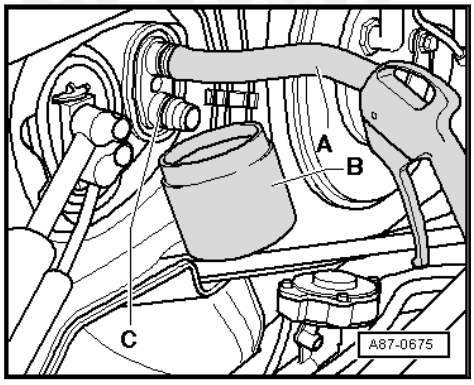
The heater core is designed for a specific coolant flow direction. Therefore, coolant hoses must be connected on the correct sides.

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– Disconnect the coolant hoses with Hose Clamps - Up To 25mm -3094-.

– Lift the clamps -2 and 3- and remove the coolant hoses from the heater core for the heater.

– Slide a short hose -A- onto the upper connection.



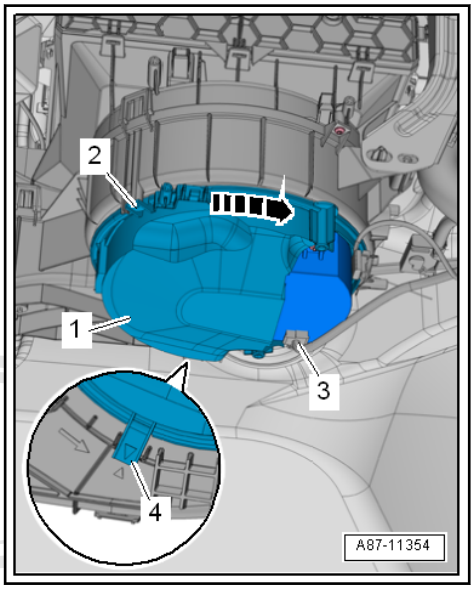
– Insert the compressed air gun into the end of the hose.

– Hold a container -B- under the lower connection -C- and carefully blow the coolant out of the heater core using the compressed air gun.

– Seal the open lines and connections with clean plugs from the Engine Bung Set -VAS 6122-.

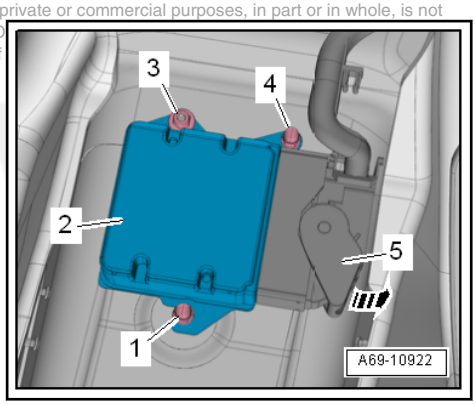
– Remove the instrument panel central tube. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel Central Tube.

– Disconnect the connector -3- from the fresh air blower -1-.



– Cover the carpet under the heater and A/C unit with absorbent paper.
– Remove the airbag control module. Refer to ⇒ Body Interior; Rep. Gr. 69; Airbag Control Module; Overview - Airbag Control Module.

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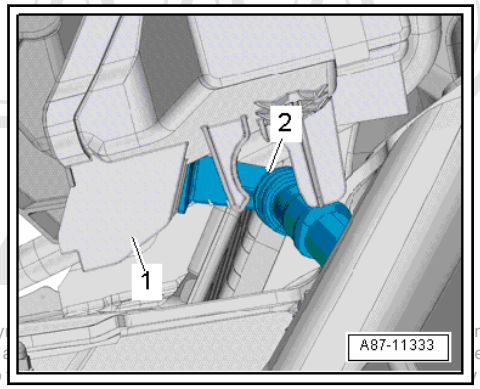
WARNING

Danger of the airbag control module malfunctioning due to corrosion on the connector.

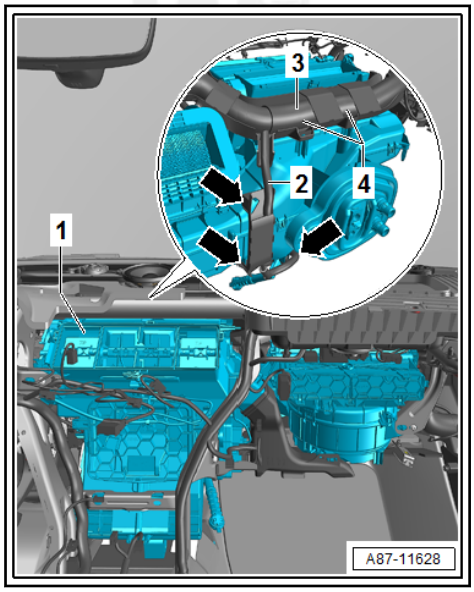
- *Cover or seal the airbag control module connector after disconnecting to prevent moisture from entering.*

– Remove the condensation water drain -2- from the heater and A/C unit -1-.

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– Remove the heater and A/C unit -1- from the brackets.



– Free up the line channel -3-.
– Free up the wiring harness -2- at the mounts -4- -arrows-.
– Remove the heater and A/C unit to the right.

Installing

Install in the reverse order of removal while noting the following:

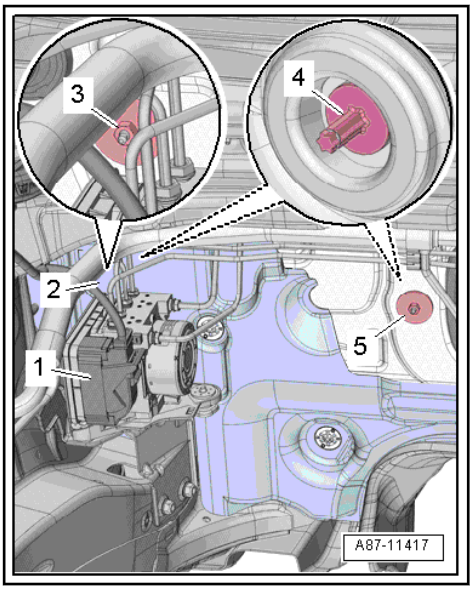
– Fill the coolant. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant; Coolant, Draining and Filling.
– Evacuate and fill the refrigerant circuit. Refer to ⇒ Refrigerant R134a Servicing; Rep. Gr. 87; Refrigerant Circuit (Refrigerant R134a Servicing, Refrigerant Circuit, Working with A/C Service Station) or ⇒ Refrigerant R1234yf Servicing; Rep. Gr. 87; Working with A/C Service Station.
– Operate the A/C system after charging the refrigerant circuit. Refer to ⇒ S2.13 ystem, Starting after Charging Refrigerant Circuit", page 150 .
– Install the remaining components.
– Check the DTC memory and erase any displayed entries, then perform the "basic setting". Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
– Check the heating and A/C system function.

5.10 Heater and A/C Unit Bracket, Removing and Installing

Note

The brackets remain installed in the vehicle when removing the heater and A/C unit.

Removing



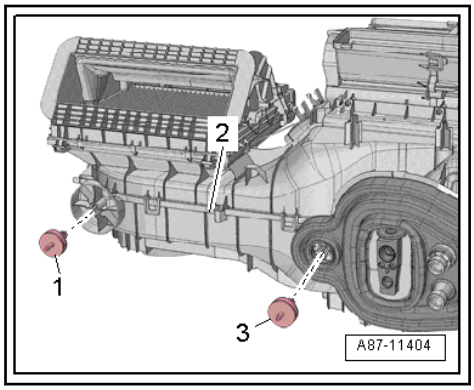
- Remove the heater and A/C unit. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .
- Disconnect the connector -1-.
- Fold the heat shield -2- behind the ABS unit to the side.
- Remove the nuts -3 and 5-.
- Remove the bracket -4- in the vehicle interior.

Note

If the nut above the ABS unit is not accessible as described, the refrigerant pipe with the inner heat exchanger must be removed. Refer to ⇒ L2.10 ines with Inner Heat Exchanger, Removing and Installing", page 139 .

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Installing



Install in the reverse order of removal while noting the following:

- Tightening specification. Refer to ⇒ a5.11 nd A/C Unit, Disassembling and Assembling", page 244 .

– Insert the brackets -1 and 3- into the mounts on the heater and A/C unit -2- and bring the A/C unit into the installation position.

– Install the heater and A/C unit. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .

– Tighten the nut on the brackets.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

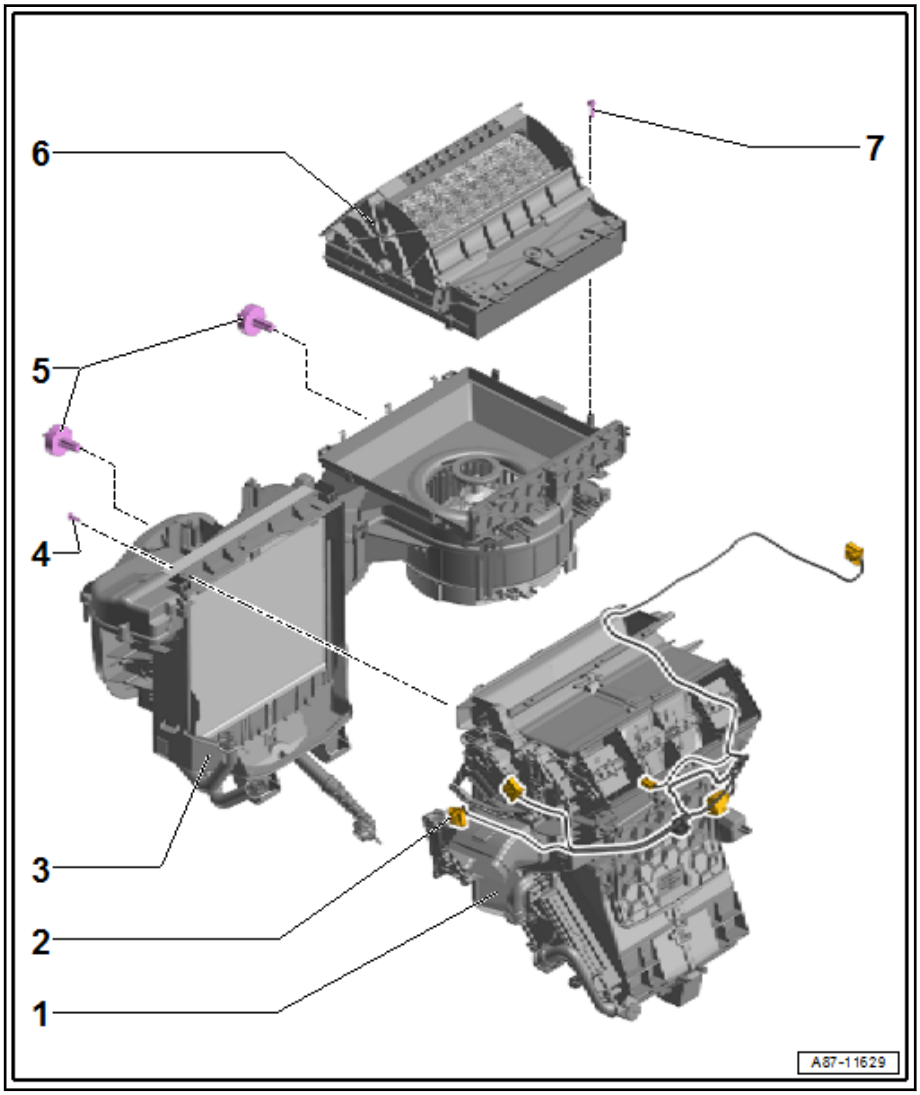
5.11 Heater and A/C Unit, Disassembling and Assembling

Note

- *There are different versions and manufacturers of the heater and A/C units. At the start of production, only "Denso" heater and A/C units are being installed on the Audi TT. Heater and A/C units of other manufacturers may also installed at a later date. Individual components of the different heater and A/C units are similar but not the same. Interchanging components from different manufacturers is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Heater and A/C unit characteristics of other manufacturers: Refer to ⇒ a3.1 nd A/C Unit Identification", page 17.*

The overview shows a LHD vehicle as an example. The component layout is a mirror image for RHD vehicles.

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1 - Air Distribution Housing

- There are different versions. Refer to ⇒ -5.1 Heater and A/C Unit", page 209 .
- Differentiating between the various manufacturers. Refer to ⇒ a3.1 nd A/C Unit Identification", page 17 .
- Interchanging components made by different manufacturers is not permitted. Refer to ⇒ a3.1 nd A/C Unit Identification", page 17 .
- Depending on vehicle equipment level, with or without the Auxiliary Heater Heating Element -Z35-
- Removing and Installing. Refer to ⇒ D5.12 istribution Housing, Removing and Installing", page 246 .

2 - Wiring Harness

- There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).

3 - Evaporator Housing

- Overview. Refer to ⇒ -5.3 Evaporator Housing", page 220 .

4 - Bolt

- Quantity: 3
- 1 Nm

5 - Bracket

- For heater and A/C unit
- Removing and Installing. Refer to ⇒ a5.10 nd A/C Unit Bracket, Removing and Installing", page 243 .

Note

The brackets remain installed in the vehicle when removing the heater and A/C unit.

6 - Air Intake Housing

- There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- Overview. Refer to ⇒ -5.2 Attachments for Heater and A/C Unit and Air Intake Housing", page 218 .

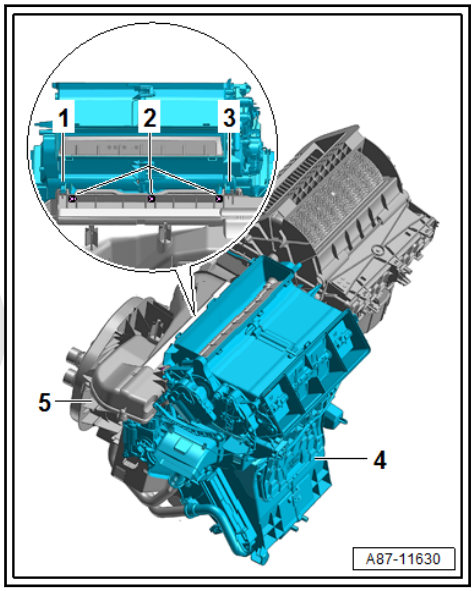
7 - Bolt

- Tightening specification ⇒ Item 4 (page 219) .

5.12 Air Distribution Housing, Removing and Installing

Removing

– Remove the heater and A/C unit. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .



– Remove the coolant pipes from the heater core. Refer to ⇒ C5.18 ore, Removing and Installing", page 256 .

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– Disconnect the connector from the fresh/recirculated air door motor and free up the wiring harness.
– Remove the bolts -2-.
– Release the tabs -1 and 3-.
– Pivot the air distribution housing -4- toward the rear, disengage it and disconnect it from the evaporator housing -5-.

Installing

Install in the reverse order of removal while noting the following:

- Tightening specification. Refer to ⇒ a5.11 nd A/C Unit, Disassembling and Assembling", page 244 .

Note

The smallest leaks at the groove/spring connection between the air distribution housing and the evaporator housing can lead to whistling noises due to escaping air. Lightly coat the connection points with silicone grease, for example. Silicone grease. Refer to the ⇒ Electronic Parts Catalog (ETKA).

– Install the heater and A/C unit. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .
– Install the remaining components.
– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
– Check the heating and A/C system function.

5.13 Dust and Pollen Filter, Removing and Installing

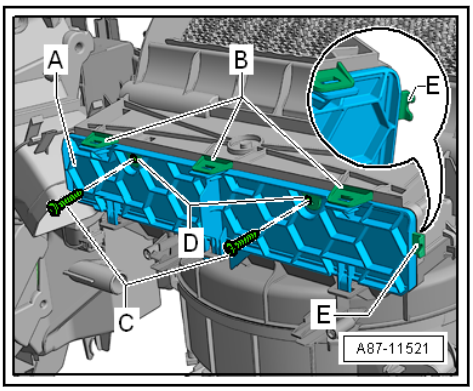
Note

From MY 2017 as a running change a dust and pollen filter with bioactive compounds is installed. These bioactive compounds reduce allergens which are in the air flowing through. This filter may be installed retroactively in all vehicles. Refer to the ⇒ Electronic Parts Catalog (ETKA).

Special tools and workshop equipment required

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- Hook Tool -T40207- (only necessary if there is no hook -E- on the service cover -A-).

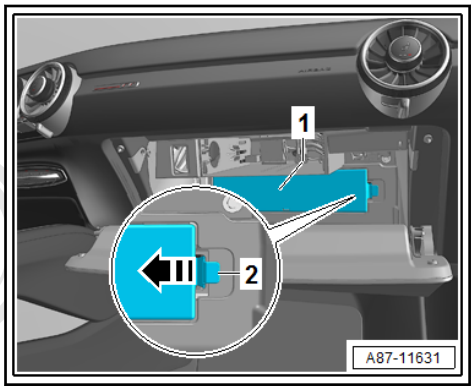


- Commercially available vacuum cleaner (only for vehicles that are exposed to higher dust and dirt pollution).
- Blower Motor Cover Plate -T10532- (only for vehicles that are exposed to higher dust or dirt pollution).

Note

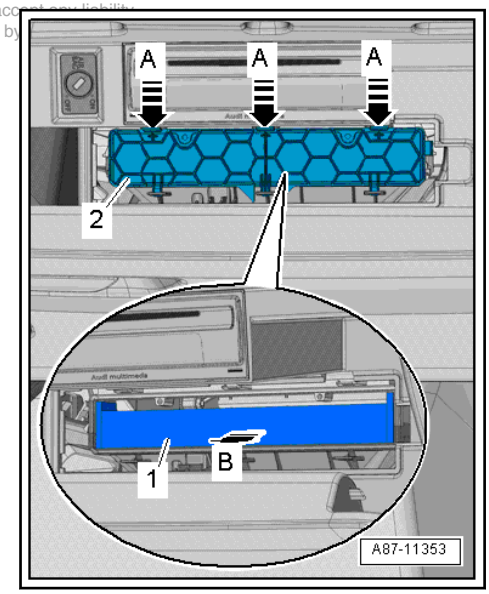
- *If the retaining tabs -B- for the service cover -A- on the heater and A/C unit or on the service cover are broken, the service cover -A- can also be fastened onto the heater and A/C unit with two metal collar bolts -C- (for example, 3.5 x 16 mm or 4.0 x 16 mm) and two suitable washers. Refer to the ⇒ Electronic Parts Catalog (ETKA). To do so, create 4.5 mm holes on the service cover -A- at the two mounting points marked with -D-.*
- *There is a hook -E- on the service cover -A- which aids in removing the dust and pollen filter. If the hook -E- is not present, the Hook Tool -T40207- can be used instead.*

Removing



– Clean the glove compartment and lay out paper.
– Unclip the service cover -1- in the glove compartment by releasing the retainer -2- in the direction of -arrow-.
– Release the retaining tabs in the direction of -A arrows-.

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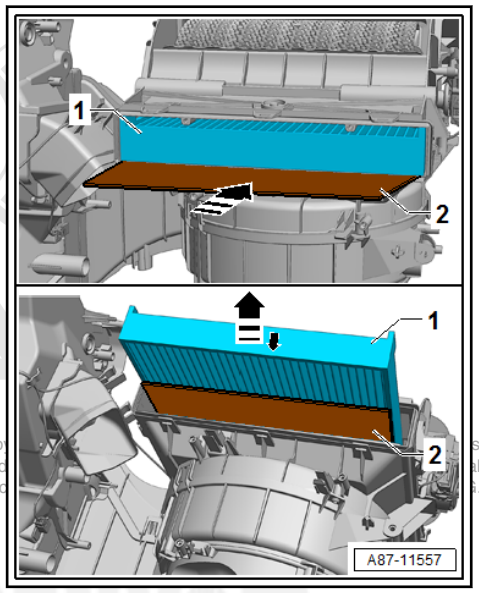
– Pivot the cover -2- to the rear.
• When doing so, the guides are disengaged from the mounts.

Caution

Risk of damaging the Fresh Air Blower -V2- due to dirt falling out of the dust and pollen filter.

- *If the dust and pollen filter is heavily contaminated, slide a Blower Motor Cover Plate -T10532- under the dust and pollen filter and, after removing the dust and pollen filter, clean the dirt from the top of the cover plate with a vacuum cleaner.*
- *Carefully pull the dust and pollen filter out of the installation slot.*
- *If it is suspected that dirt has gotten in the area between the dust and pollen filter and the Fresh Air Blower -V2-, remove the fresh air blower (refer to ⇒ F5.14 resh Air BlowerV2, Removing and Installing", page 250) and clean the fresh air blower and the area between the fresh air blower and the installation slot for the dust and pollen filter.*

– For a vehicle that is exposed to higher dust or dirt pollution, push the Blower Motor Cover Plate -T10532- -2- all the way into the dust and pollen filter shaft under the dust and pollen filter -1-.



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Note

- *The dust and dirt pollution of the dust and pollen filter can be evaluated, for example, by the dirt deposits in the plenum chamber. Refer to ⇒ C6.9 hamber Water Drain, Checking", page 309 .*
- *Measurements of the Blower Motor Cover Plate -T10532-: 252 mm x approximately 300 mm x 0.8 mm (edges rounded).*

– Remove the dust and pollen filter -1- (using the hook on the service cover or the Hook Tool -T40207-) in the direction of -arrow B-. While doing so, hold the Blower Motor Cover Plate -T10532- -2- that may be slid in under the dust and pollen filter in the dust and pollen filter shaft.

– If necessary, clean the dust and dirt from the top of the Blower Motor Cover Plate -T10532- -2- using a vacuum cleaner.

Installing

Install in the reverse order of removal while noting the following:

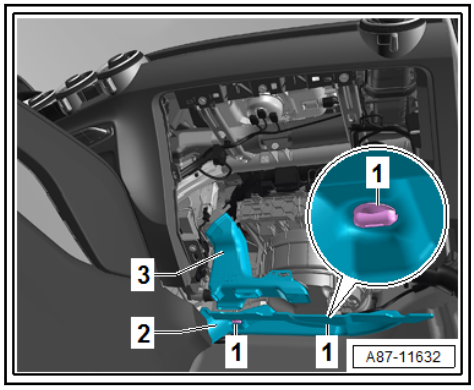
- Installation position of the dust and pollen filter (arrow for the airflow direction at the filter).

– Switch on the ignition and check the Fresh Air Blower -V2- function.

5.14 Fresh Air Blower -V2-, Removing and Installing

Removing

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– Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments and Covers; Glove Compartment, Removing and Installing.

– Remove the front passenger side footwell vent -3-. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

– Detach the quick release (screw or clip) -1- using a screwdriver (or pliers).

Note

- *There are different ways of securing the cover -2- (screw or clip -1-). Replace the clip version, if necessary. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Pry the clip version out, for example, with pliers or a screwdriver.*

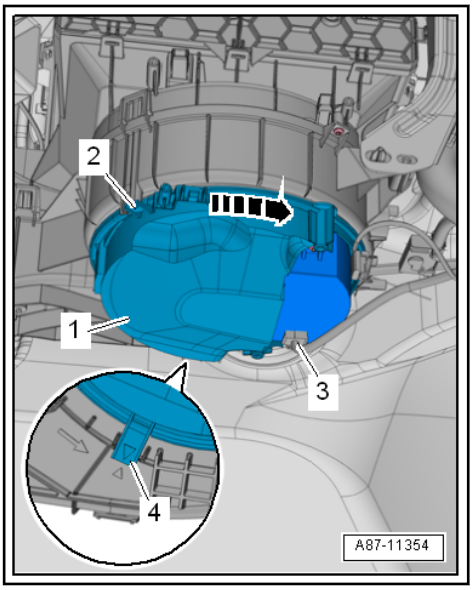
– Remove the cover -2-.

Caution

Fan wheel imbalance.

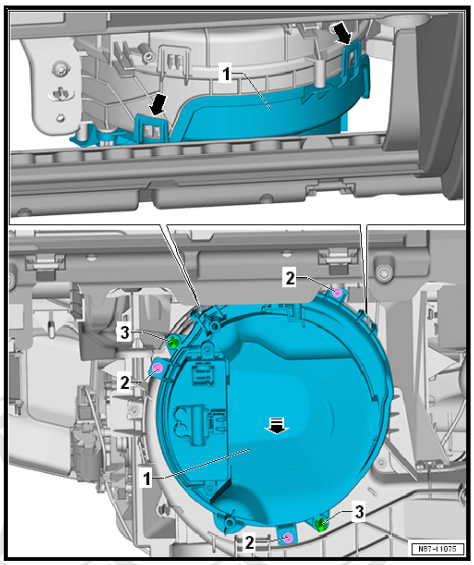
- ***Do not grasp the fan wheel of the Fresh Air Blower -V2-. Any force applied against the fan wheel or shifting the balancing weights fastened to the fan wheel may cause imbalance and then complaints during operation.***

LHD vehicle



– Disconnect the connector -3-.
– Remove the bolt -2-, if equipped.
– Lift the securing tab -4- and turn the fresh air blower -1- clockwise -arrow-.
– Remove the fresh air blower from the evaporator housing lower section.

RHD vehicles



– Remove the bolts -2-.
– Unclip the securing tabs -arrows- and remove the Fresh Air Blower - V2- -1- downward in the direction of the -arrow-.

Continuation for All Vehicles

Installing

Install in reverse order of removal.

- Tightening specification. Refer to ⇒ -5.2 Attachments for Heater and A/C Unit and Air Intake Housing", page 218 .

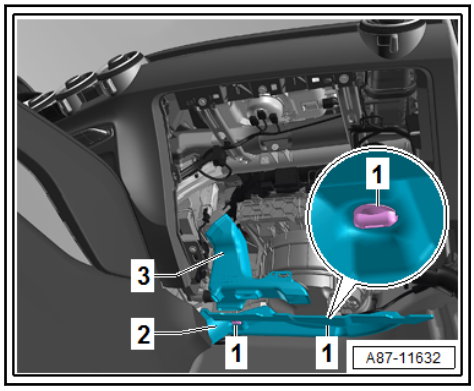
– Install the remaining components.

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– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
– Then check the Fresh Air Blower -V2- function.

5.15 Fresh Air Blower Control Module - J126-, Removing and Installing

Removing



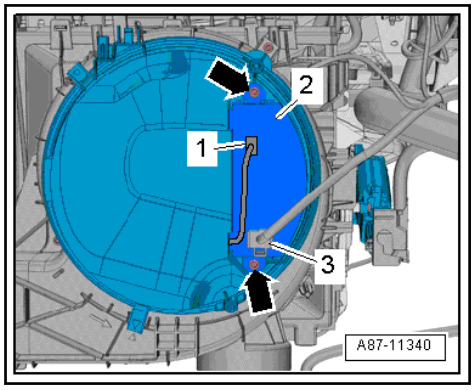
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– Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments and Covers; Glove Compartment, Removing and Installing.
– Remove the front passenger side footwell vent -3-. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing”, page 294 .
– Detach the quick release (screw or clip) -1- using a screwdriver (or pliers).

Note

- *There are different ways of securing the cover -2- (screw or clip -1-). Replace the clip version, if necessary. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Pry the clip version out, for example, with pliers or a screwdriver.*

– Remove the cover -2-.
– Disconnect the connectors -1 and 3-.



– Remove the bolts -arrows-.

WARNING

There is a risk of burns.

- *If the Fresh Air Blower -V2- with the Fresh Air Blower Control Module -J126- was in operation before the removal, it may be hot.*
- *Do not touch the hot cooling surface of the Fresh Air Blower Control Module -J126-.*

– Remove the control module -2- from the fresh air blower.

Installing

Install in the reverse order of removal while noting the following:

– Install the remaining components.

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

– Then check the Fresh Air Blower -V2- function.

Tightening Specifications

- Refer to ⇒ -5.2 Attachments for Heater and A/C Unit and Air Intake Housing”, page 218

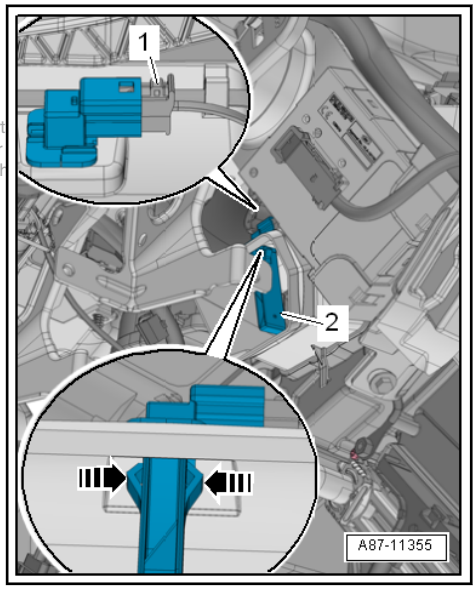
5.16 Footwell Vent Temperature Sensor -G192-, Removing and Installing

Note

Only on vehicles with an automatic climate control system. The opening in the air duct is sealed off with a plug on vehicles with a heater or a manual climate control system.

Removing

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TIP:

- In RHD vehicles, the Footwell Vent Temperature Sensor -G192- is installed in the right footwell vent connection.

WARNING

Risk of injury by the knee airbag.

- *Before working in an area with pyrotechnic components, the person must "discharge static electricity". Pay attention to the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 00; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components (Body Interior; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components).*

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

– Remove the driver side instrument panel cover (or knee airbag). Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments/Covers; Driver Side Instrument Panel Cover, Removing and Installing.

– Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

– Release the tabs on the left and right using a small screwdriver in the direction of -arrows-.

– Remove the Footwell Vent Temperature Sensor -G192- -item 2- upward.

– Disconnect the connector -1-.

Installing

Install in reverse order of removal.

– Install the remaining components.

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

5.17 Auxiliary Heater Heating Element - Z35-, Removing and Installing

Removing

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WARNING

Risk of injury by the knee airbag.

- *Before working in an area with pyrotechnic components, the person must "discharge static electricity". Pay attention to the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 00; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components (Body Interior; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components).*

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

– Remove the driver side instrument panel cover (or knee airbag). Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Com-

partments/Covers; Driver Side Instrument Panel Cover, Removing and Installing.

LHD vehicle

– Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

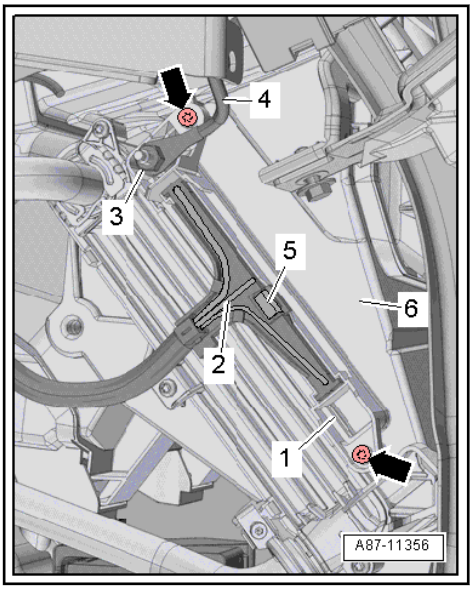
RHD vehicles

– Remove the footwell vent on the front passenger side. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

Continuation for All Vehicles

– Remove the center console. Refer to ⇒ Body Interior; Rep. Gr. 68; Center Console; Overview - Center Console.

– Remove the nut -3- and then remove the ground wire -4-.



WARNING

There is a risk of burns.

- *If the Auxiliary Heater Heating Element -Z35- was in operation before being removed, it may still be hot.*
- *Do not touch the hot metal surface of the Auxiliary Heater Heating Element -Z35-.*

– Disconnect the connector -2- by sliding the retainer -5- upward and pressing the release inward.

– Remove the bolts -arrows-.

– Remove the Auxiliary Heater Heating Element -Z35- -item 1- to the left from the housing -6-.

Installing

Install in reverse order of removal.

- Install the remaining components.
- Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

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- Check the heating and A/C system function.

Tightening Specifications

♦ Refer to ⇒ -5.1 Heater and A/C Unit", page 209

5.18 Heater Core, Removing and Installing

⇒ C5.18.1 ore, Removing and Installing, Denso", page 256

⇒ C5.18.2 ore, Removing and Installing, Valeo", page 261

5.18.1 Heater Core, Removing and Installing, Denso

Note

There are different versions and manufacturers of the heater and A/C units. Individual components of the different heater and A/C units are similar but not the same (for characteristics, refer to ⇒ a3.1 nd A/C Unit Identification", page 17). Interchanging components from different manufacturers is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).

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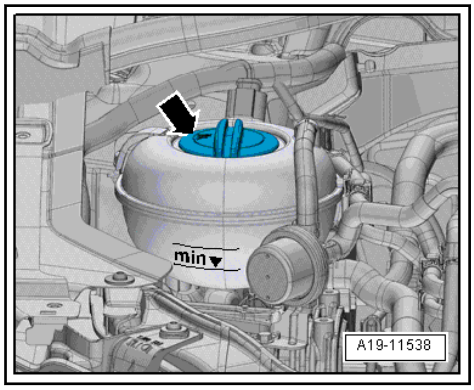
Special tools and workshop equipment required

♦ Engine Bung Set -VAS 6122-

♦ A/C Pipe Pliers -T40147-

♦ Commercially available compressed air gun

Removing



WARNING

There is a risk of scalding due to hot steam and hot coolant.

- *The cooling system is under pressure when the engine is warm.*
- *To reduce the pressure, cover the coolant reservoir cap with cloths and then open it carefully.*

– Open the coolant reservoir cap -arrow-.

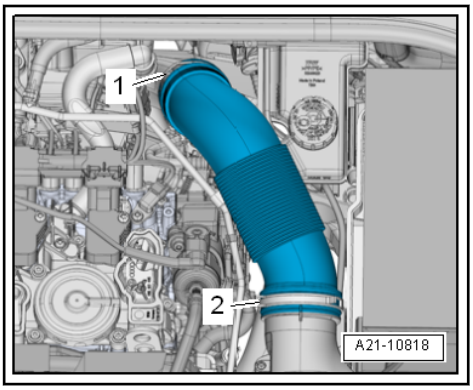
– Move the front seats as far back as possible.

– Set the airflow direction to the windshield "defroster vent".

– Switch the ignition off.

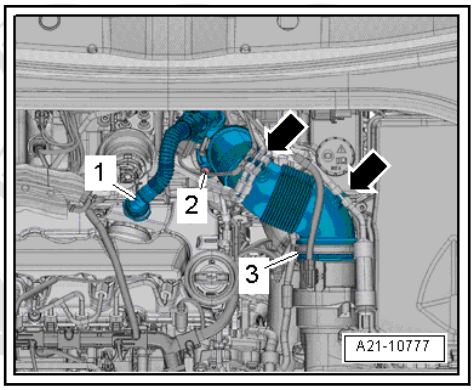
– Versions with ignition lock: remove the ignition key.

Vehicles with 1.8L TFSI Engine



– Loosen the hose clamps -1 and 2- and remove the air duct pipe.

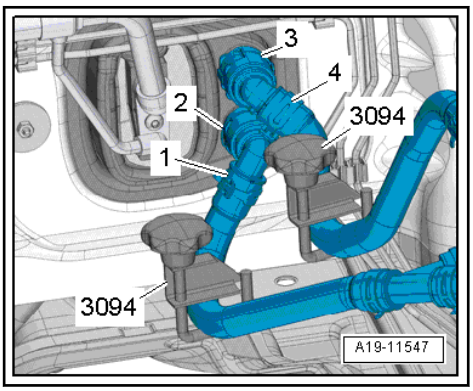
Vehicles with 2.0L TDI engine



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– Press the release buttons on the crankcase ventilation hose -1- and remove the hose from the cylinder head cover.
– Free up the vacuum hose on the air duct pipe -arrows-.
– Loosen the hose clamp -3-.
– Remove the bolt -2-, pivot the air duct pipe with the connection toward the rear and remove it from the turbocharger.

Continuation for All Vehicles

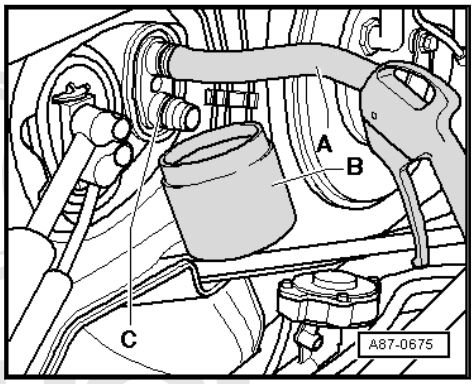


– Mark the installation position of the coolant hoses -1 and 4-.

Note

The heater core is designed for a specific coolant flow direction. Therefore, coolant hoses must be connected on the correct sides.

- Disconnect the coolant hoses with Hose Clamps - Up To 25mm -3094-.
- Lift the clamps -2 and 3- and remove the coolant hoses from the heater core for the heater.
- Slide a short hose -A- onto the upper connection.



- Insert the compressed air gun into the end of the hose.
- Hold a container -B- under the lower connection -C- and carefully blow the coolant out of the heater core using the compressed air gun.
- Seal the open lines and connections with clean plugs from the Engine Bung Set -VAS 6122-.

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WARNING

Risk of injury by the knee airbag.

- *Before working in an area with pyrotechnic components, the person must "discharge static electricity". Pay attention to the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 00; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components (Body Interior; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components).*

LHD vehicle

- Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

RHD vehicles

- Remove the footwell vent on the front passenger side. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

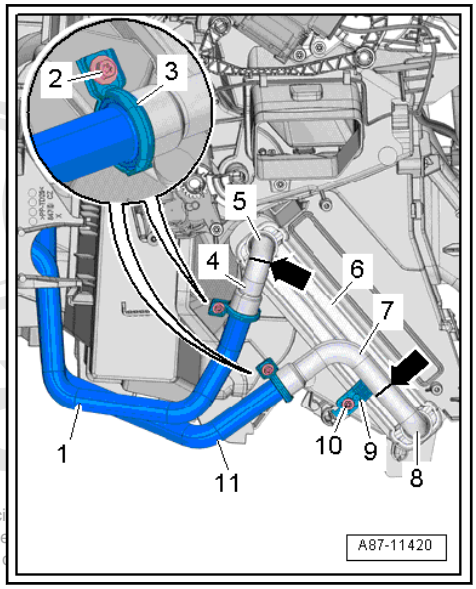
Continuation for All Vehicles

- Remove the center console. Refer to ⇒ Body Interior; Rep. Gr. 68; Center Console; Overview - Center Console.

– Vehicles with auxiliary heater: Disconnect the connector. Refer to ⇒ A5.17 uxiliary Heater Heating ElementZ35, Removing and Installing", page 254 .

– Cover the area underneath the connections for the coolant hoses in the plenum chamber with a liquid-tight cover and absorbent paper, for example.

– Remove the bolts -2- and remove the screw-type clamps -3-.



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– Disconnect the coolant pipes.

Note

- *If the coolant pipes cannot be disconnected due to a stuck O-ring, cut through the coolant pipes at the positions marked with -arrows- using the A/C Pipe Pliers -T40147-.*
- *Bend the remaining coolant pipes -5 and 8- on the heater core as far backward as possible in the direction of travel so that the heater core can be removed from the housing.*
- *Remove the severed heater core coolant pipes -4 and 7- from the coolant pipes -1 and 11- to the engine.*

– Remove the bolt -10- and then remove the bracket -9- for the heater core.

– Remove the heater core -6- to the left.

– Seal the open lines and connections with clean plugs from the Engine Bung Set -VAS 6122-.

Installing

Install in the reverse order of removal while noting the following:

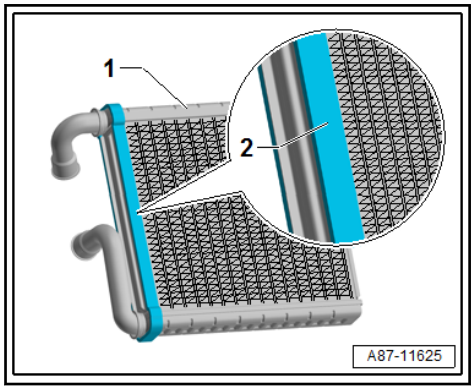
Note

Replace the O-rings.

– With the heater core removed, check the heater shaft for debris.

– If necessary, remove any dirt or coolant residue.

– Vehicles with a TDI engine: check the heating element shaft for debris when the auxiliary heater heating element is removed and clean if necessary.
– If equipped, check the foam seals -2- attached to the heater core -1- for damage and replace if necessary.

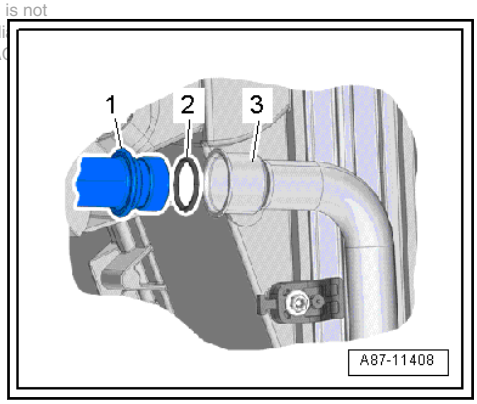


Note

- *The foam seals -2- depending on the version and the production time is not always present.*
- *If not bonded correctly, the foam seal may curl up during insertion.*
- *Cold air may flow past the heater core if the foam seal is damaged or not properly installed.*

– Check the heater core connection -3- and the connection for the coolant pipes -1- for damage or debris.

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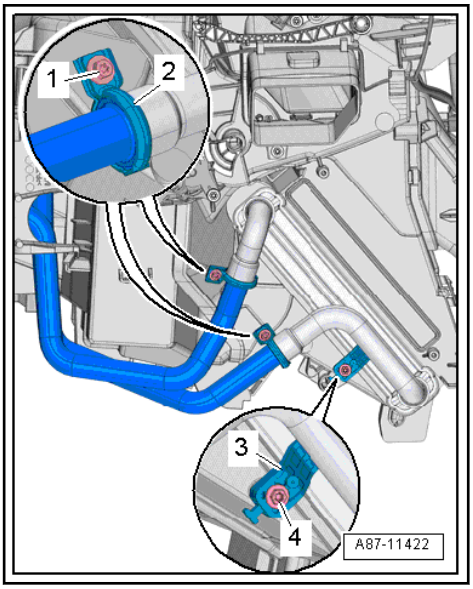
– Clean and smooth the sealing surface for the O-ring.
– Coat a new O-ring -2- with coolant (or lightly with silicone grease) and attach it to the coolant pipe.
– Carefully slide the heater core all the way into the A/C unit.

Note

When inserting the heater core, make sure that the connections and the coolant pipes are not damaged.

– Slide the coolant pipes into the heater core until stop.

– Attach the heater core bracket -3- onto the air distribution housing and tighten the screw -4- to specification (tightening specification: 2 Nm).



– Attach new screw-type clamps -2- onto the coolant pipe/ heater core connection.

– Tighten the bolt -1-. Refer to ⇒ -5.1 Heater and A/C Unit", page 209 .

– Check the screw-type clamps for proper seating on the heater core and coolant pipe connections. They must not be touching the air distribution housing or any other components.

– Fill the coolant. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant; Coolant, Draining and Filling.

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

Tightening Specifications

♦ Refer to ⇒ -5.1 Heater and A/C Unit", page 209

♦ Refer to ⇒ Rep. Gr. 21; Turbocharger; Overview - Turbocharger.

5.18.2 Heater Core, Removing and Installing, Valeo

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Note

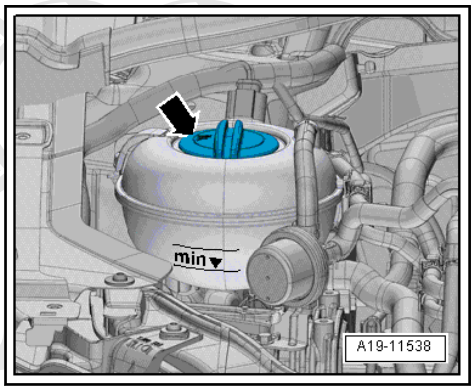
There are different versions and manufacturers of the heater and A/C units. Individual components of the different heater and A/C units are similar but not the same (for characteristics, refer to ⇒ a3.1 nd A/C Unit Identification", page 17). Interchanging components from different manufacturers is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).

Special tools and workshop equipment required

♦ Engine Bung Set -VAS 6122-

- Commercially available compressed air gun

Removing



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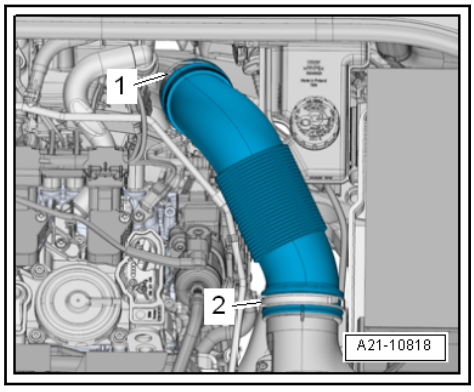
WARNING

There is a risk of scalding due to hot steam and hot coolant.

- *The cooling system is under pressure when the engine is warm.*
- *To reduce the pressure, cover the coolant reservoir cap with cloths and then open it carefully.*

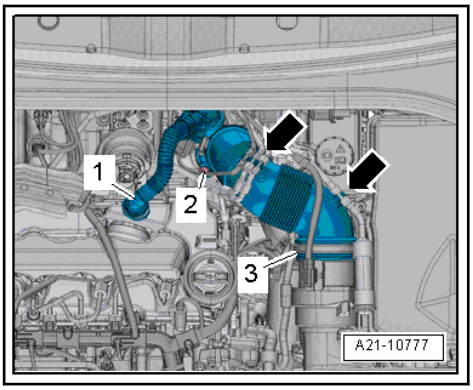
– Open the coolant reservoir cap -arrow-.
– Move the front seats as far back as possible.
– Set the airflow direction to the windshield “defroster vent”.
– Switch the ignition off.
– Versions with ignition lock: remove the ignition key.

Vehicles with 1.8L TFSI Engine



– Loosen the hose clamps -1 and 2- and remove the air duct pipe.

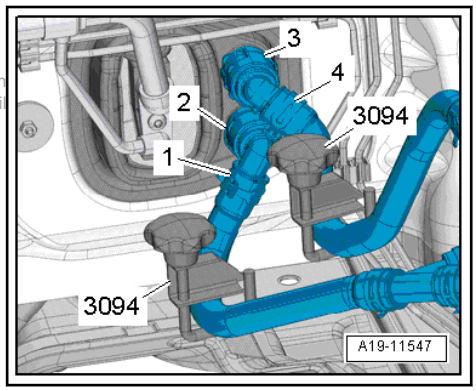
Vehicles with 2.0L TDI engine



– Press the release buttons on the crankcase ventilation hose -1- and remove the hose from the cylinder head cover.
– Free up the vacuum hose on the air duct pipe -arrows-.
– Loosen the hose clamp -3-.
– Remove the bolt -2-, pivot the air duct pipe with the connection toward the rear and remove it from the turbocharger.

Continuation for All Vehicles

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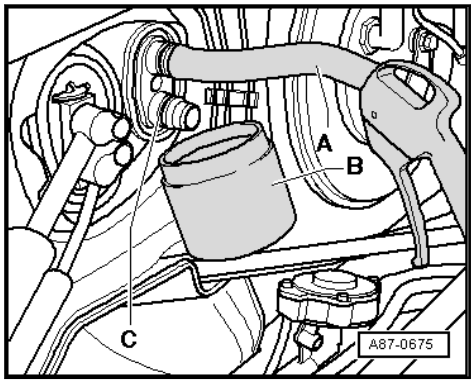


– Mark the installation position of the coolant hoses -1 and 4-.

Note

The heater core is designed for a specific coolant flow direction. Therefore, coolant hoses must be connected on the correct sides.

– Disconnect the coolant hoses with Hose Clamps - Up To 25mm -3094-.
– Lift the clamps -2 and 3- and remove the coolant hoses from the heater core for the heater.
– Slide a short hose -A- onto the upper connection.



Insert the compressed air gun into the end of the hose.

– Hold a container -B- under the lower connection -C- and carefully blow the coolant out of the heater core using the compressed air gun.
– Seal the open lines and connections with clean plugs from the Engine Bung Set -VAS 6122-.

WARNING

Risk of injury by the knee airbag.

- ***Before working in an area with pyrotechnic components, the person must "discharge static electricity". Pay attention to the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 00; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components (Body Interior; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components).***

LHD vehicle

– Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

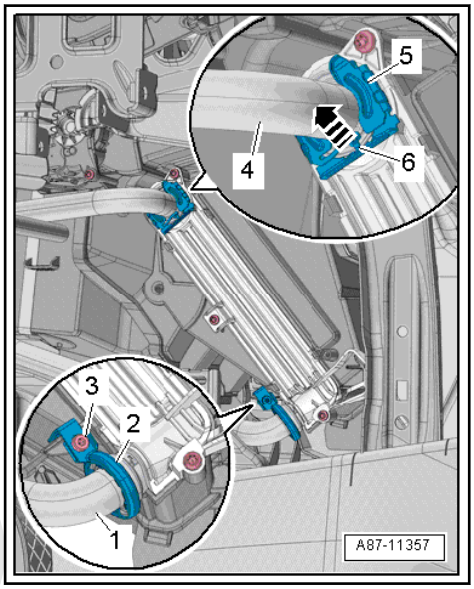
RHD vehicles

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– Remove the footwell vent on the front passenger side. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .
– Remove the fresh air blower. Refer to ⇒ F5.14 resh Air BlowerV2, Removing and Installing", page 250 .

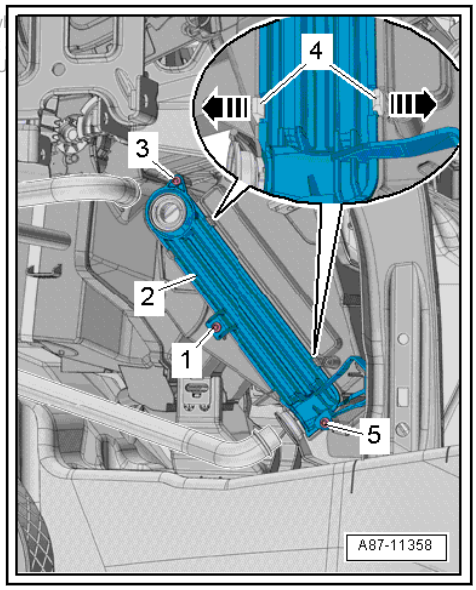
Continuation for All Vehicles

– Remove the center console. Refer to ⇒ Body Interior; Rep. Gr. 68; Center Console; Overview - Center Console.
– Vehicles with auxiliary heater: Remove the Auxiliary Heater Heating Element -Z35-. Refer to ⇒ A5.17 uxiliary Heater Heating ElementZ35, Removing and Installing", page 254 .
– Cover the area underneath the connections for the coolant hoses in the plenum chamber with a liquid-tight cover and absorbent paper, for example.
– Lift the retainer -6-, remove the clip -5- and remove the upper coolant line -4- from the heater core.

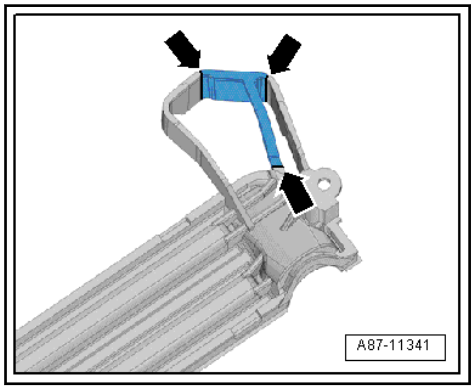


– Remove the bolt -3-.
– Remove the screw-type clamp -2- and then remove the lower coolant line -1- from the heater core.
– Seal the open lines and connections with clean plugs from the Engine Bung Set -VAS 6122-.
– Remove the bolts -1, 3 and 5-.

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– Release the securing tabs -4- in the direction of -arrows- and remove the cover -2-.
– Open the tab on the cover -arrows-.



– Remove the heater core to the left.

Installing

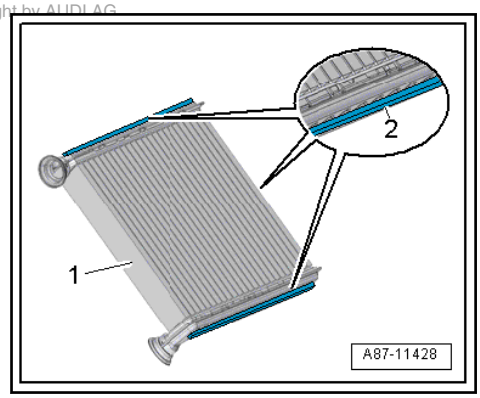
Install in the reverse order of removal while noting the following:

Note

Replace the O-rings.

– With the heater core removed, check the heater shaft for debris.
– If necessary, remove any dirt or coolant residue.
– Vehicles with a TDI engine: check the heating element shaft for debris when the auxiliary heater heating element is removed and clean if necessary.
– Check the foam seals -2- attached to the heater core -1- for damage and replace if necessary.

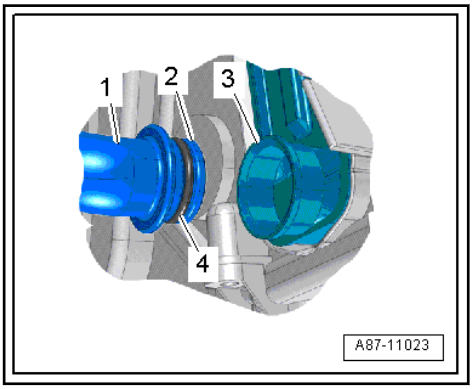
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Note

- *If not bonded correctly, the foam seal may curl up during insertion.*
- *Cold air may flow past the heater core if the foam seal is damaged or not properly installed.*

– Check the heater core connection -3- and the connection -2- for the coolant pipes for damage or debris.

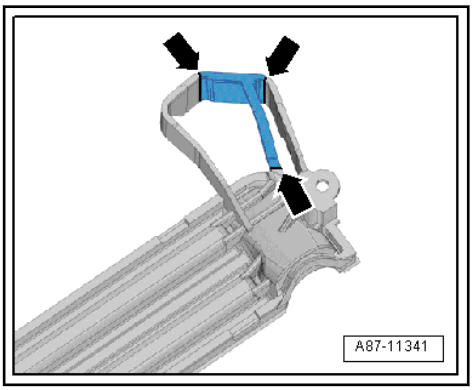


– Clean and smooth the sealing surface for the O-ring.
– Coat a new O-ring -4- with coolant (or lightly with silicone grease) and attach it to the coolant pipe -1-.
– Carefully slide the heater core into the heater and A/C unit until stop.

Note

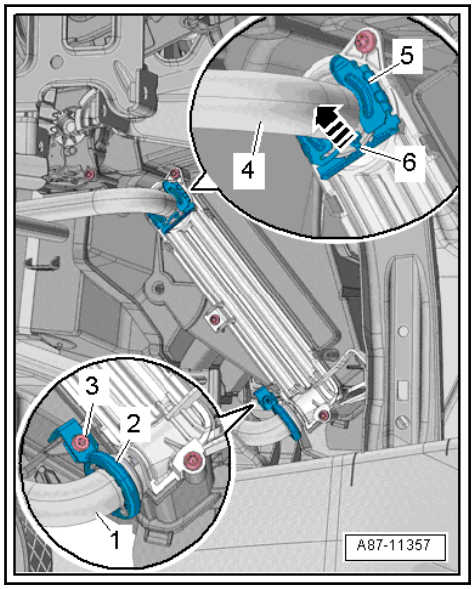
When inserting the heater core, make sure that the connections and the coolant pipes are not damaged.

– Slide the coolant pipes into the heater core until stop.
– If the cover cannot be attached to the heater core, make cuts on the rubber support -arrows- as shown.



– Position a new securing clip -5- or screw-type clamp -2- on the coolant pipe/heater core connection.

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Note

- *When performing a repair, a screw-type clamp may also be installed instead of the securing clip -5-.*
- *Ignore the -arrow-.*

– Tighten the bolt -3-. Refer to ⇒ -5.1 Heater and A/C Unit", page 209.

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– Check the screw-type clamps for proper seating on the heater core and coolant pipe connections. They must not be touching the air distribution housing or any other components.

– Fill the coolant. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant; Coolant, Draining and Filling.

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

– Check the heating and A/C system function.

Tightening Specifications

- Refer to ⇒ -5.1 Heater and A/C Unit", page 209
- Refer to ⇒ Rep. Gr. 21; Turbocharger; Overview - Turbocharger.

5.19 Heater Core Coolant Pipes, Removing and Installing

⇒ C5.19.1 ore Coolant Pipes, Removing and Installing, Denso", page 269

⇒ C5.19.2 ore Coolant Pipes, Removing and Installing, Valeo", page 271

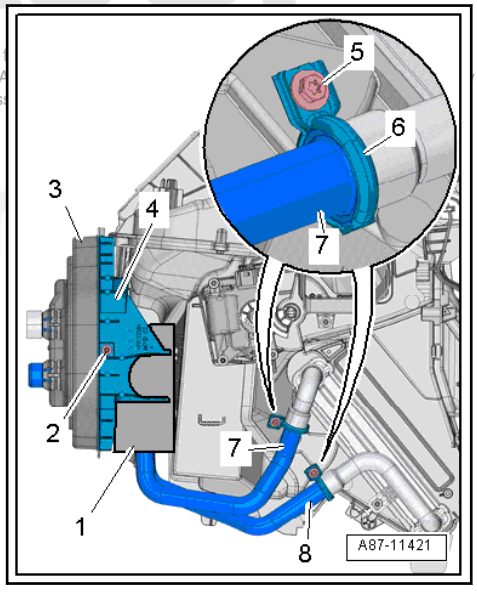
5.19.1 Heater Core Coolant Pipes, Removing and Installing, Denso

Note

There are different versions and manufacturers of the heater and A/C units. Individual components of the different heater and A/C units are similar but not the same (for characteristics, refer to ⇒ a3.1 nd A/C Unit Identification", page 17). Interchanging components from different manufacturers is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).

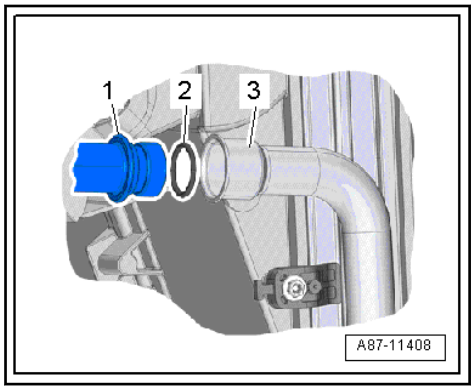
Removing

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- Remove the heater and A/C unit. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .
- Remove the sealing boot -3- to the plenum chamber bulkhead.
- Remove the bolt -2-.
- Remove the bracket -4- for the coolant pipes to the left.
- Remove the foam -1-.
- Remove the bolt -5- and remove the screw-type clamp -6-.
- Remove the coolant pipes -7 and 8- from the heater core.

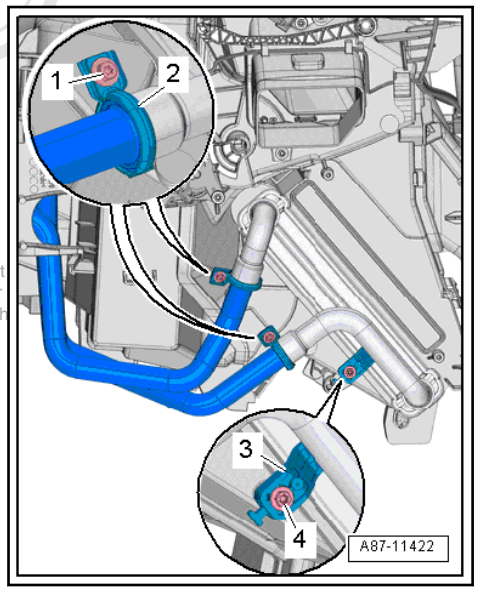
Installing



Install in the reverse order of removal while noting the following:

- Check the heater core connection -3- and the connection for the coolant pipes -1- for damage or debris.
- Clean and smooth the sealing surface for the O-ring.
- Coat a new O-ring -2- with coolant (or lightly with silicone grease) and attach it to the coolant pipe -1-.
- Slide the coolant pipes into the heater core until stop.
- Attach new screw-type clamps -2- onto the coolant pipe/ heater core connection.

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- Tighten the bolt -1- to specification.
- Check the screw-type clamps for proper seating on the heater core and coolant pipe connections. They must not be touching the air distribution housing or any other components.
- Install the heater and A/C unit. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .
- Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
- Check the heating and A/C system function.

Tightening Specifications

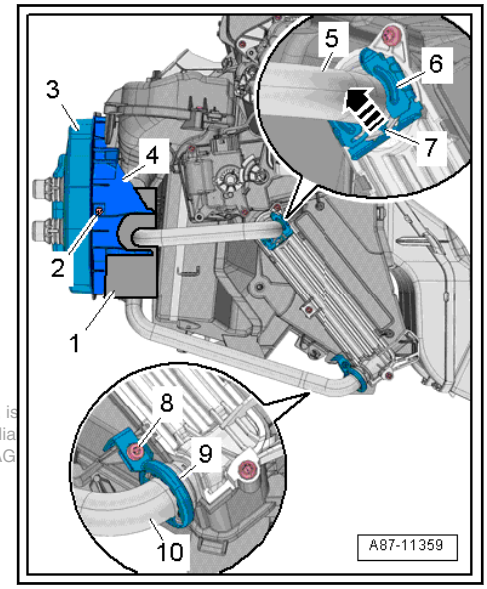
♦ Refer to ⇒ -5.1 Heater and A/C Unit", page 209

5.19.2 Heater Core Coolant Pipes, Removing and Installing, Valeo

Note

There are different versions and manufacturers of the heater and A/C units. Individual components of the different heater and A/C units are similar but not the same (for characteristics, refer to ⇒ a3.1 nd A/C Unit Identification", page 17). Interchanging components from different manufacturers is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).

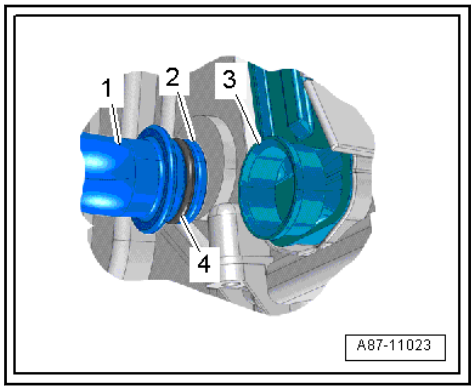
Removing



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– Remove the heater and A/C unit. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .
– Remove the sealing boot -3- to the plenum chamber bulkhead.
– Remove the bolt -2-.
– Remove the bracket -4- for the coolant pipes to the left.
– Remove the foam -1-.
– Lift the retainer -7-, remove the clip -6- and remove the upper coolant line -5- from the heater core.
– Remove the bolt -8-.
– Remove the screw-type clamp -9- and then remove the lower coolant line -10- from the heater core.
– Remove the coolant pipes.

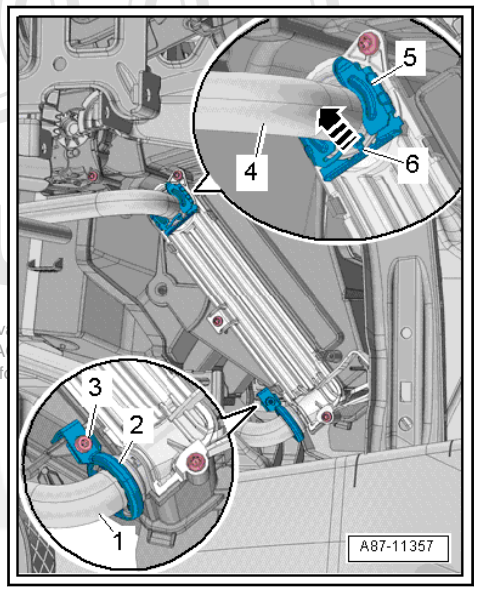
Installing



Install in the reverse order of removal while noting the following:

- Check the heater core connection -3- and the connection -2- for the coolant pipes for damage or debris.
- Clean and smooth the sealing surface for the O-ring.
- Coat a new O-ring -4- with coolant (or lightly with silicone grease) and attach it to the coolant pipe -1-.
- Slide the coolant pipes into the heater core until stop.
- Attach the new screw-type clamp -2- onto the coolant pipe/ heater core connection.

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Note

When performing a repair, a screw-type clamp may also be installed instead of the securing clip -5-. Ignore the -arrow-.

- Tighten the bolt -3- to specification.
- Check the screw-type clamps for proper seating on the heater core and coolant pipe connections. They must not be touching the air distribution housing or any other components.
- Install the heater and A/C unit. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

– Check the heating and A/C system function.

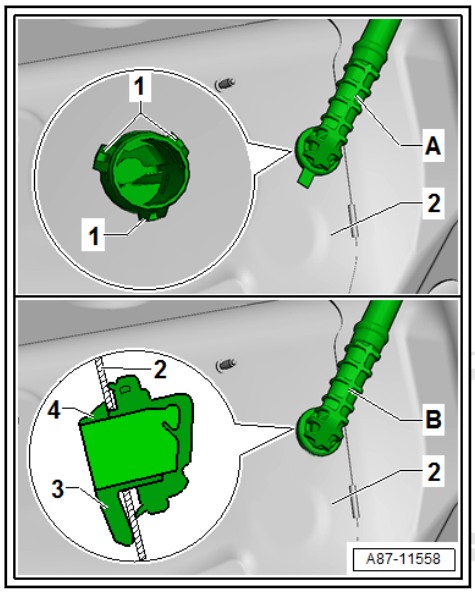
Tightening Specifications

♦ Refer to ⇒ -5.1 Heater and A/C Unit”, page 209

5.20 Condensation Water Drain Hose, Checking

Note

There are different versions of the condensation water drain hose. On the version -A-, it is engaged in the floor panel -2- by three retaining tabs -1-. On the version -B-, it is engaged in the floor panel -2- by the tab -3 and 4-. Make sure that the condensation water drain is seated correctly and securely in the floor panel.



Procedure

– Remove the center console. Refer to ⇒ Body Interior; Rep. Gr. 68; Center Console; Center Console, Removing and Installing.

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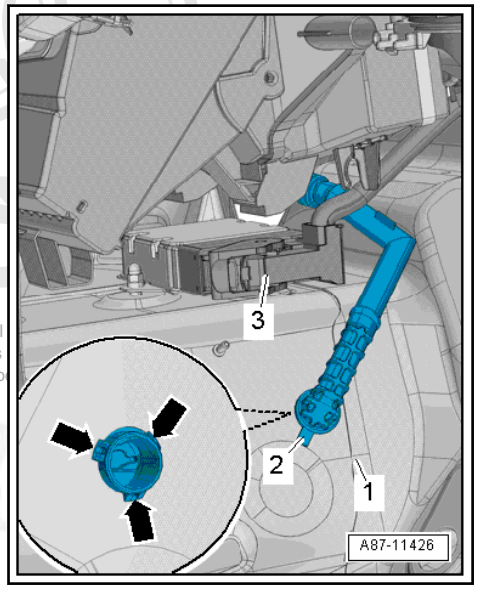
WARNING

Danger of the airbag control module malfunctioning due to corrosion on the connector.

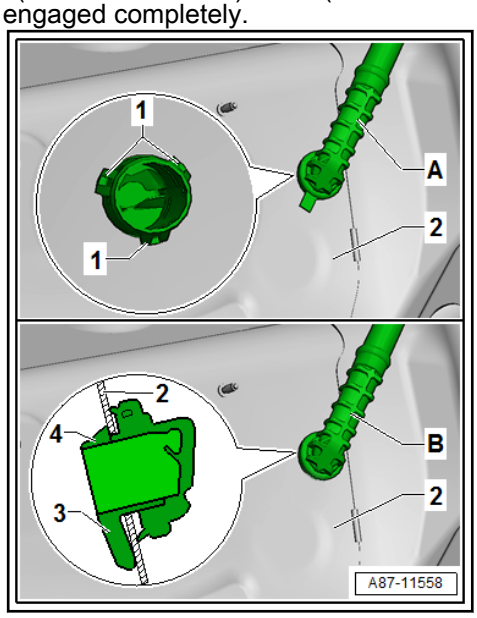
♦ ***Cover or seal the connector for the airbag control module to protect it from moisture.***

– Cover the airbag control module -3-.

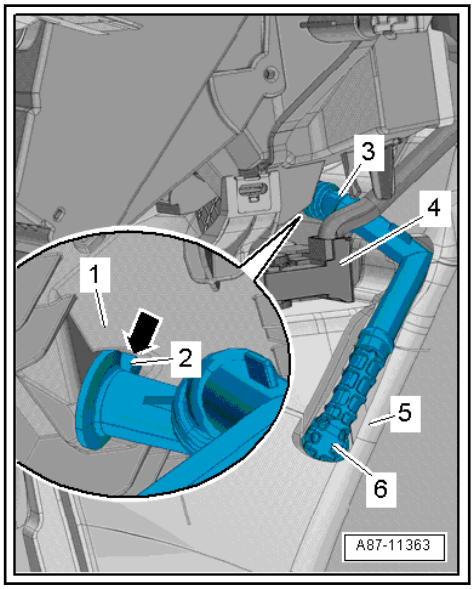
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– Carefully fold back the carpet near the condensation water drain hose far enough so that the condensation water drain hose is visible.
– The retaining tabs -arrows- on the condensation water drain hose must be engaged completely and with pretension in the floor panel opening in the body -1- (this illustration shows version “A”).
- The sealing lip must not sit loosely on the body opening.
- The retaining tabs -1- (on the version -A-) or -4- (on the version -B-) must be engaged completely.



- If the pretension is inadequate, seal the connection point between the body and the bracket with silicone adhesive, for example. Refer to the ⇒ Electronic Parts Catalog (ETKA).
– Check the condensation water drain -3- for a secure fit on the heater and A/C unit connection -1-.

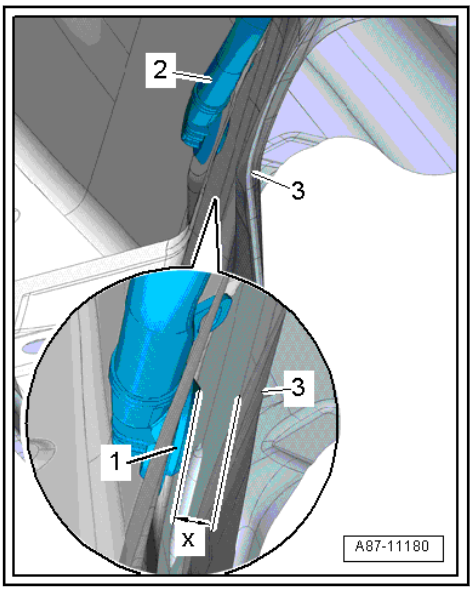


- The condensation water drain -3- must not sit loosely on the connection for the heater and A/C unit -1- (condensation water can escape with a loose fit).
- If the pretension is inadequate, secure the condensation water drain -3- on the connection for the heater and A/C unit -1- with a cable tie or a hose clamp.

– If the bracket with the condensation water drain hose sits correctly in the body opening and on the connection for the heater and A/C unit, the condensation water drain hose must be checked for dirt.

– Remove the condensation water drain hose. Refer to ⇒ W5.21 ater Drain Hose, Removing and Installing", page 278 .

– Check the distance between the condensation water drain opening -1- and the heat shield -3-.



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- There must be a sufficient distance (dimension -x-) so that the condensation water can drain from the condensation water drain hose -2-.

– Check the A/C condenser water drain for dirt and if necessary, clean using a piece of wire.

- The cross section of the condensation water drain hose must not be constricted (pressed together).

If there is a complaint regarding moisture in the vehicle interior, check the following components in addition to the condensation water drain:

- Water drain for the plenum chamber. Refer to ⇒ C6.9 hamber Water Drain, Checking", page 309 .
- Rain water drain channel for damage and correct installation. Refer to ⇒ W6.5 ater Drain Channel, Removing and Installing", page 299 .
- Plenum chamber cover for damage and correct installation. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; (Overview - Plenum Chamber Cover).
- Dust and pollen filter for contamination and correct installation. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing", page 247 .
- Forced air extraction in the luggage compartment. Refer to ⇒ I6.7 nterior Forced Air Extraction, Checking", page 301 .
- Activation and function of the air recirculation door (for example, in the "output diagnostic test mode") using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

If there are complaints of moisture in the vehicle interior, also check the vent temperature of the air from the evaporator, which only occurs when the A/C compressor is switched on under certain ambient conditions. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

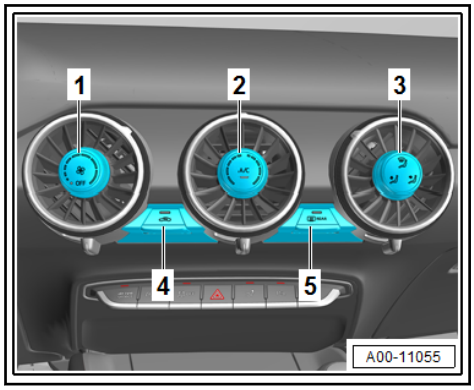
- "Read the measured value" for the Evaporator Vent Temperature Sensor -G263-.

– Check the air vent temperature at the evaporator under the operating conditions described by the customer or at the following setting on the control heads:

Vehicles with Manual Climate Control System:

– Adjust the following settings on the A/C system control heads:

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Note

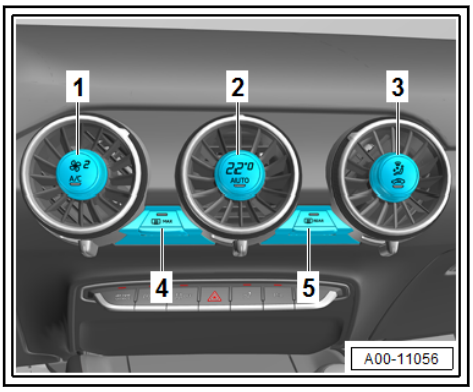
This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.

- A/C compressor on: The indicator lamp in the A/C button (in regulator -2-) illuminates.

- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “cold” stop.
- Fresh air mode on: the indicator lamp in the Fresh Air and Recirculating Air Mode Button -E781- -4- does not come on.
- Turn the fresh air blower regulator -1- (Front A/C Display Control Head 2 -E775-) to the lowest possible speed (the fresh air blower can still be heard running).
- Turn the regulator -3- (Front A/C Display Control Head 4 -E777-) for air distribution to “instrument panel vent”.

Vehicles with Automatic Climate Control System:

– Adjust the following settings on the A/C system control heads:



Note

- *This illustration shows the layout of the regulators -1, 2 and 3- and the buttons -4 and 5- on a LHD vehicle. The layout may be different on RHD vehicles.*
- *The information in the regulators -1, 2 and 3- is only displayed when the ignition is switched on and goes out when the ignition is switched off.*

- A/C compressor on: The indicator lamp in the A/C button (in regulator -1-) illuminates.
- “Auto” mode on: The indicator lamp in the Auto button (in the regulator -2-) illuminates.
- Turn the regulator -2- (Front A/C Display Control Head 3 -E776-) for the temperature setting to the “cold” stop.
- Turn the regulator -3- (Front A/C Display Control Head 4 -E777-) for air distribution to “instrument panel vent”.
- Fresh air mode on: the indicator lamp for “recirculating air mode” in the Recirculation button (in the regulator -3-) does not come on.
- Turn the fresh air blower regulator -1- (Front A/C Display Control Head 2 -E775-) to the lowest possible speed (setting 1, the fresh air blower can still be heard running).
- Defrost mode off: the indicator lamp in the Defrost Button -E782- -4- does not come on.

Continuation for All Vehicles:

– Open the instrument panel vent.

– If the Evaporator Vent Temperature Sensor -G263- measured value is too low (colder than 0 ºC for a long period of

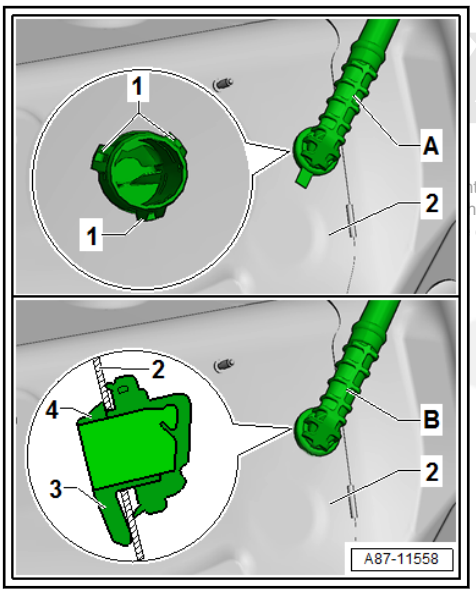
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time when the ambient temperature is above 0 °C (32 °F)) or too high (even though the A/C is working correctly, for example: higher than 10 °C (50 °F)), follow the procedure for checking the cooling output. Refer to ⇒ O4.7 utput, Checking", page 39 .

5.21 Condensation Water Drain Hose, Removing and Installing

Note

There are different versions of the condensation water drain hose. On the version -A-, it is engaged in the floor panel -2- by three retaining tabs -1-. On the version -B-, it is engaged in the floor panel -2- by the tab -3 and 4-. Make sure that the condensation water drain is seated correctly and securely in the floor panel.



- *For vehicles with a heater and no A/C system, the condensation water drain has no function due to the missing A/C system. Even though the condensation water drain does not have a function, it still must be installed properly. If it is not installed correctly, moisture can get into the vehicle interior or there may be noises when operating the heater.*
- *Depending on the vehicle version, a condensation water drain may not be installed on vehicles with a heater and without an A/C system. In this case, the openings in the underbody and the connection on the heater are sealed off with a plug. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

Removing

– Remove the center console. Refer to ⇒ Body Interior; Rep. Gr. 68; Center Console; Center Console, Removing and Installing.

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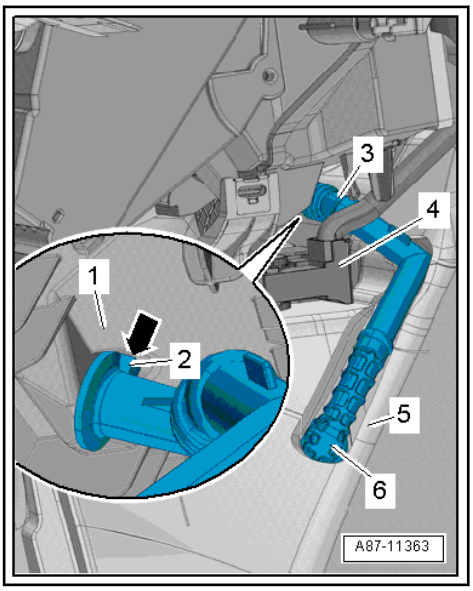
WARNING

Danger of the airbag control module malfunctioning due to corrosion on the connector.

- *Seal the connector for the airbag control module to protect it from moisture.*

– Remove the connector from the airbag control module. Refer to ⇒ Body Interior; Rep. Gr. 69; Airbag Control Module.

– Cover the airbag control module and the corresponding connector -4- with a liquid-tight cover.



– Carefully push the carpet to the side and cover it in the area under the condensation water drain hose with waterproof foil and absorbent paper.

– Remove the condensation water drain hose -3- from the heater and A/C unit -1- and the body -5-.

Installing

Install in the reverse order of removal while noting the following:

– The condensation water drain hose can only be slid all the way onto the heater and A/C unit in one position.

• The tab -arrow- on the connection must engage into the guide -2-.

– Also secure the condensation water drain -3- to the heater and A/C unit connection -1- with a cable tie or a hose clamp.

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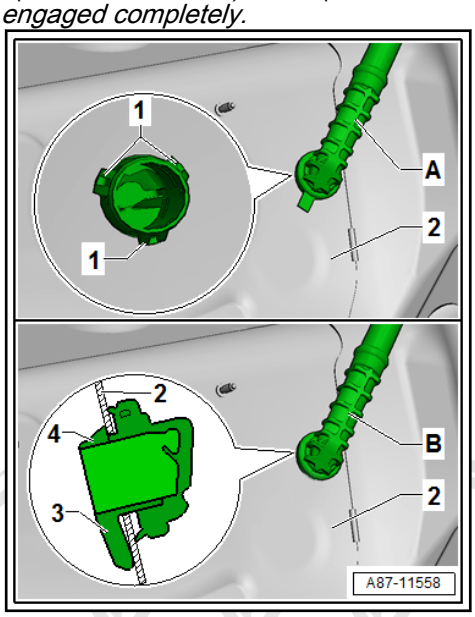
Note

The condensation water drain -3- must not sit loosely on the connection for the heater and A/C unit -1- (condensation water can escape with a loose fit).

– Insert the condensation water drain hose -6- into the floor panel opening in the body (this illustration shows version “A”) until it engages audibly.

Note

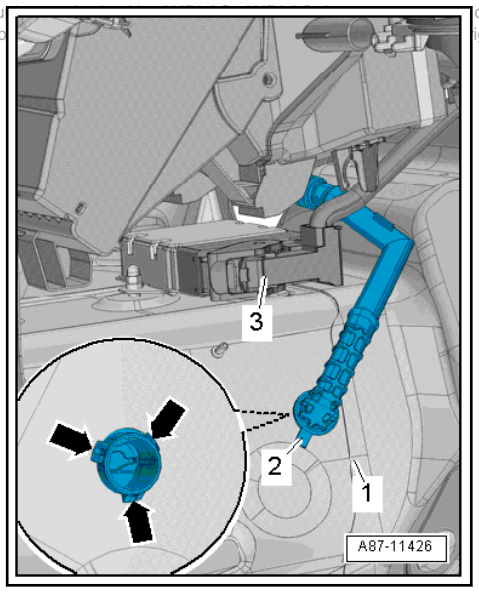
- *The sealing lip must not sit loosely on the floor panel body opening.*
- *The retaining tabs -1- (on the version -A-) or -4- (on the version -B-) must be engaged completely.*



If the pretension is inadequate, seal the connection point between the body and the condensation water drain with silicone adhesive, for example. Refer to the ⇒ Electronic Parts Catalog (ETKA).

- The retaining tabs -arrows- (this illustration shows version “A”) on the condensation water drain hose must be completely engaged in the opening in the body -1- with pretension.

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- The sealing lip must not sit loosely on the body opening (check).
- If the pretension is inadequate, seal the connection point between the body floor panel and the condensation water drain

with silicone adhesive, for example. Refer to the ⇒ Electronic Parts Catalog (ETKA).

Note

- *Install the condensation water drain hose so that it is not twisted or crushed.*
- *When installing the carpet, make sure it does not push up against the condensation water drain hose.*
- *If the condensation water drain hose sits too loosely on the heater and A/C unit connection, secure it, for example, with a hose clamp or a cable tie so that it cannot slide off and fluid cannot escape. Cable tie and hose clamp. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

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6 Air Duct

⇒ -6.1 Air Routing and Air Distribution in Vehicle Interior", page 282

⇒ V6.2 ents, Removing and Installing", page 286

⇒ D6.3 ucts, Removing and Installing", page 295

⇒ I6.4 ntake Duct, Removing and Installing", page 298

⇒ W6.5 ater Drain Channel, Removing and Installing", page 299

⇒ A6.6 ir Intake, Removing and Installing", page 300

⇒ I6.7 nterior Forced Air Extraction, Checking", page 301

⇒ I6.8 nterior Forced Air Extraction, Removing and Installing", page 306

⇒ C6.9 hamber Water Drain, Checking", page 309

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6.1 Overview - Air Routing and Air Distribution in Vehicle Interior

The overview shows a LHD vehicle as an example. The component layout is a mirror image for RHD vehicles.

Air Distribution Housing, Front Air Ducts

1 - Right A-Pillar Trim Panel with Vent

- ❑ Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Vehicle Interior Trim Panels; Overview - A-Pillar Trim Panel.

2 - Right Side Defroster Vent

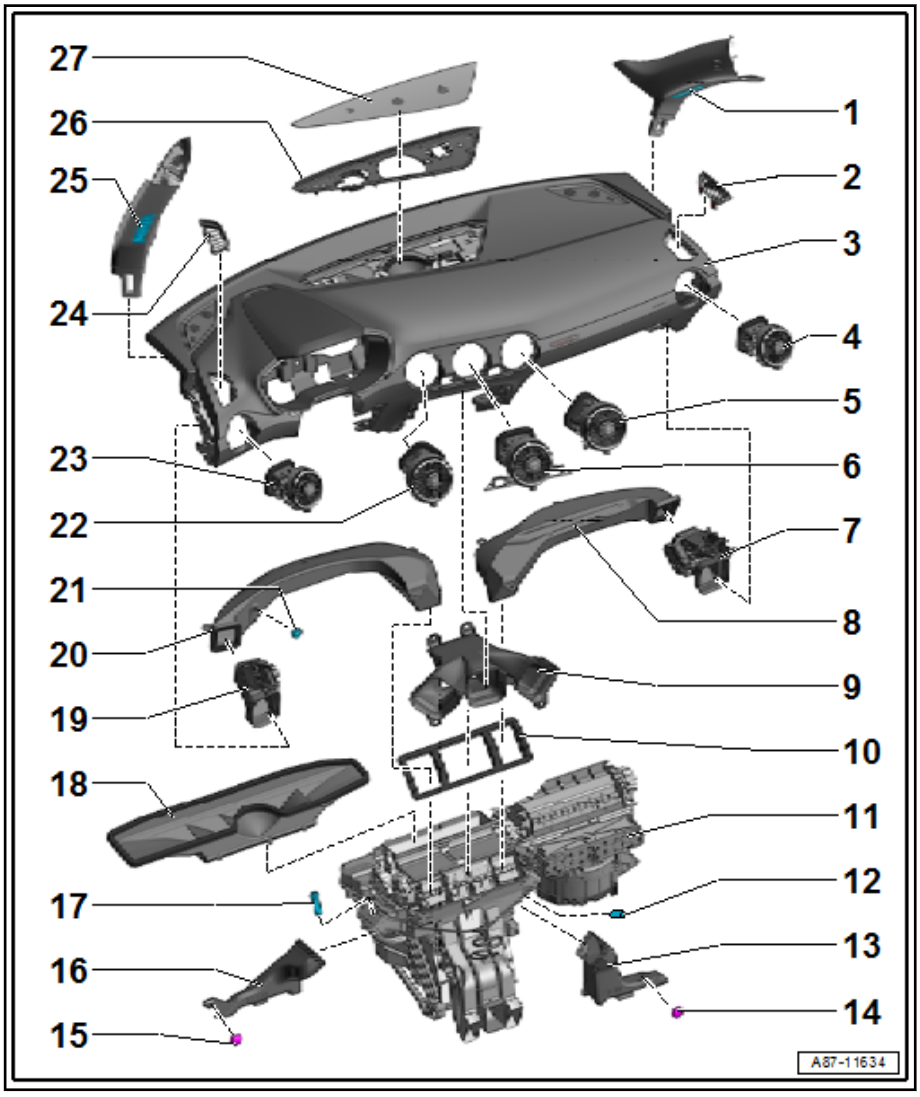
- ❑ Removing and Installing. Refer to ⇒ D6.2.2 efroster Vent, Removing and Installing", page 287 .

3 - Instrument Panel

- ❑ Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel

4 - Right Instrument Panel Vent (with Cover or Front A/C Display Control Head 5 -E778-)

- ❑ Instrument Panel Vent, Removing and Installing. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
- ❑ Cover / Front A/C Display Control Head 5 -E778-, Removing and Installing. Refer to ⇒ K7.2.6 nob for Seat Heating (and Neck Heating) on Front A/C Display Control Head 5E778, Removing and Installing", page 345 .



5 - Right Center Instrument Panel Vent (with Front A/C Display Control Head 4 -E777-)

- ❑ Instrument Panel Vent, Removing and Installing. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
- ❑ Front A/C Display Control Head 4 -E777-, Removing and Installing. Refer to ⇒ f7.2.5 or Air Distribution on Front A/C Display Control Head 4E777, Removing and Installing", page 343 .

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Note

The layout for the Front A/C Display Control Head 2 -E775- and the Front A/C Display Control Head 4 -E777- is different depending on the vehicle version (with LHD or RHD). Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .

6 - Center Instrument Panel Vent (with Front A/C Display Control Head 3 -E776-)

- ❑ Instrument Panel Vent, Removing and Installing. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
- ❑ Front A/C Display Control Head 3 -E776-, Removing and Installing. Refer to ⇒ K7.2.4 nob for Temperature (and A/C System Operation) on Front A/C Display Control Head 3E776, Removing and Installing", page 339 .

7 - Air Duct with Right Side Window Defroster Door Motor -V410-

- ❑ Air Duct with Right Side Window Defroster Door Motor -V410-, Removing and Installing. Refer to ⇒ A6.3.2 ir Duct with Right Side Window Defroster Door MotorV410, Removing and Installing", page 296 .
- ❑ Right Side Window Defroster Door Motor -V410-, Removing and Installing. Refer to ⇒ R4.11 ight Side Window Defroster Door MotorV410 with Right Front Defroster/Upper Body Vent Shut-Off Door Motor Position SensorG317, Removing and Installing", page 202 .

8 - Air Duct

- ❑ To the right instrument panel vent
- ❑ Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel

Note

With a plug or Right Vent Temperature Sensor -G151- ⇒ Item 21 (page 285) on RHD vehicles.

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9 - Air Duct to Center Instrument Panel Vents

- ❑ Removing and Installing. Refer to ⇒ I6.2.5 nstrument Panel Vent Air Ducts, Removing and Installing", page 292 .

10 - Air Duct to Instrument Panel Vents

- ❑ Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel

11 - Heater and A/C Unit

- ❑ There are different versions. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing", page 239 .

12 - Plugs

- ❑ For equipment versions without glove compartment cooling
- ❑ Secure a loose plug with a clamp. Refer to ⇒ Fig. ""Plug for Glove Compartment Cooling"", page 286

Note

- ♦ *Introduction of glove compartment cooling not yet been finalized.*
- ♦ *Depending on the version, the connection can also be directly sealed on the heater and A/C unit.*

13 - Right Footwell Vent Air Duct, Front Passenger Side

- ❑ Removing and Installing. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

14 - Screw or Clip

- ❑ Not on all versions
- ❑ Screw tightening specification: 1.5 Nm

15 - Screw or Clip

- ❑ Screw tightening specification: 1.5 Nm

16 - Left Footwell Vent Air Duct, Driver Side

- ❑ Removing and Installing. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

17 - Footwell Vent Temperature Sensor -G192-

- ❑ On LHD vehicles and with an automatic climate control system
- ❑ Improperly installed vent temperature sensors or plugs cause flow-generated noise
- ❑ Plug on LHD vehicles and with a manual climate control system
- ❑ Removing and Installing. Refer to ⇒ F5.16 ootwell Vent Temperature SensorG192, Removing and Installing", page 253 .

18 - Air Duct to Center Defroster Vent

- ❑ Removing and Installing. Refer to ⇒ V6.2.4 ent Air Duct, Removing and Installing", page 291 .

19 - Air Duct with Left Side Window Defroster Door Motor -V409-

- ❑ Air Duct with Left Side Window Defroster Door Motor -V409-, Removing and Installing. Refer to ⇒ A6.3.1 ir Duct with Left Side Window Defroster Door MotorV409, Removing and Installing", page 295 .
- ❑ Left Side Window Defroster Door Motor -V409-, Removing and Installing. Refer to ⇒ L4.10 eft Side Window Defroster Door MotorV409 with Left Front Defroster/Upper Body Vent Shut-Off Door Motor Position SensorG318, Removing and Installing", page 200 .

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20 - Air Duct

- ❑ To the left instrument panel vent
- ❑ Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel

21 - Left Vent Temperature Sensor -G150-

- ❑ Only on LHD vehicles and with an automatic climate control system
- ❑ Improperly installed vent temperature sensors or plugs cause flow-generated noise
- ❑ Plug on LHD vehicles and with a manual climate control system
- ❑ Removing and Installing. Refer to ⇒ V5.8 ent Temperature SensorG150/Right Vent Temperature SensorG151, Removing and Installing", page 238 .

Note

Instead of the Left Vent Temperature Sensor -G150-, the Right Vent Temperature Sensor -G151- is installed behind the instrument cluster on RHD vehicles. It is located on the right side of the vehicle.

22 - Left Center Instrument Panel Vent (with Front A/C Display Control Head 2 -E775-)

- ❑ Instrument Panel Vent, Removing and Installing. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
- ❑ Front A/C Display Control Head 2 -E775-, Removing and Installing. Refer to ⇒ K7.2.3 nob for Fresh Air Blower Speed (and A/C System Operation) on Front A/C Display Control Head 2E775, Removing and Installing", page 336 .

Note

The layout for the Front A/C Display Control Head 2 -E775- and the Front A/C Display Control Head 4 -E777- is different depending on the vehicle version (with LHD or RHD). Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 .

23 - Left Instrument Panel Vent (with Cover or Front A/C Display Control Head 1 -E774-)

- ❑ Instrument Panel Vent, Removing and Installing. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
- ❑ Cover / Front A/C Display Control Head 1 -E774-, Removing and Installing. Refer to ⇒ K7.2.2 nob for Seat Heating (and Neck Heating) on Front A/C Display Control Head 1E774, Removing and Installing", page 333 .

24 - Left Side Defroster Vent

- ❑ Removing and Installing. Refer to ⇒ D6.2.2 efroster Vent, Removing and Installing", page 287 .

25 - Left A-Pillar Trim Panel with Vent

- ❑ Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Vehicle Interior Trim Panels; Overview - A-Pillar Trim Panel.

26 - Center Defroster Vent

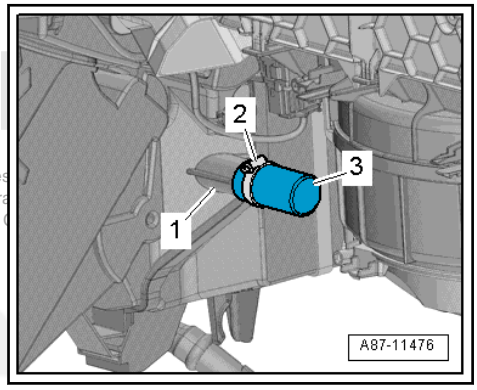
- ❑ Removing and Installing. Refer to ⇒ C6.2.1 enter Vent (Defroster Vent), Removing and Installing", page 286 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

27 - Center Speaker Trim

- ❑ Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel

Plug for Glove Compartment Cooling

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– A loose plug -3- must be secured on the heater and A/C unit -1- with a hose clamp -2-. Hose clamps. Refer to the ⇒ Electronic Parts Catalog (ETKA).

6.2 Front Vents, Removing and Installing

⇒ C6.2.1 enter Vent (Defroster Vent), Removing and Installing", page 286

⇒ D6.2.2 efroster Vent, Removing and Installing", page 287

⇒ P6.2.3 anel Vent, Removing and Installing", page 287

⇒ V6.2.4 ent Air Duct, Removing and Installing", page 291

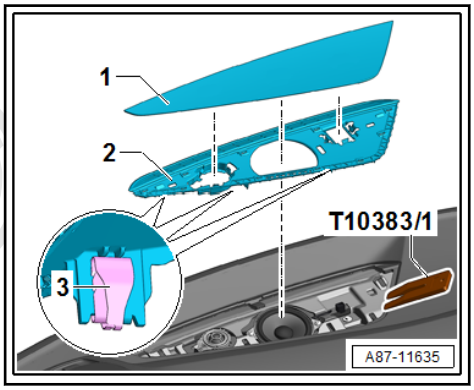
⇒ I6.2.5 nstrument Panel Vent Air Ducts, Removing and Installing", page 292

⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293

⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294

6.2.1 Front Center Vent (Defroster Vent), Removing and Installing

– If equipped, remove the Sunlight Photo Sensor -G107-. Refer to ⇒ S9.1 unlight Photo SensorG107, Removing and Installing", page 355 .



– Speaker Trim -1- and Vent -2-, Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

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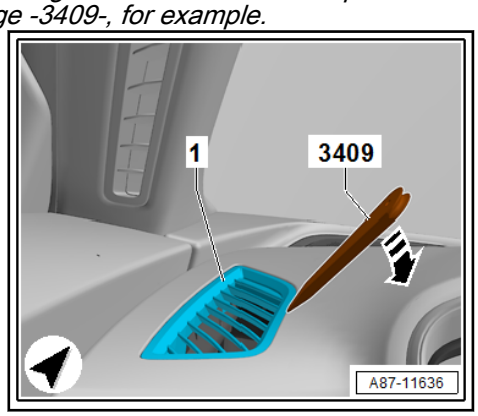
Note

The vent -2- is secured in the instrument panel with clips -3-. Carefully pry it out using a Wedge Set -T10383-, for example.

6.2.2 Side Defroster Vent, Removing and Installing

Note

The side defroster vent -1- on the left and right sides can be removed by carefully pushing it out of the instrument panel with the Trim Removal Wedge -3409-, for example.



Removing and Installing. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

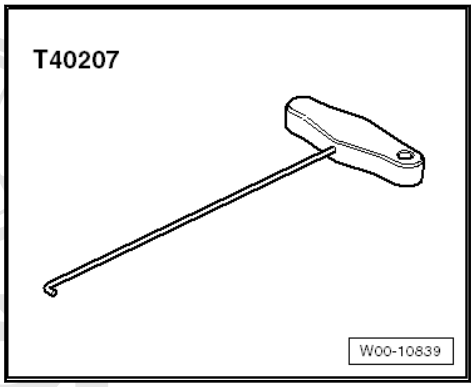
6.2.3 Instrument Panel Vent, Removing and Installing

Note

This repair manual only outlines the procedure for removing and installing the instrument panel vent. The exact description of the removal and installation of the various instrument panel vents can be found in ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

Special tools and workshop equipment required

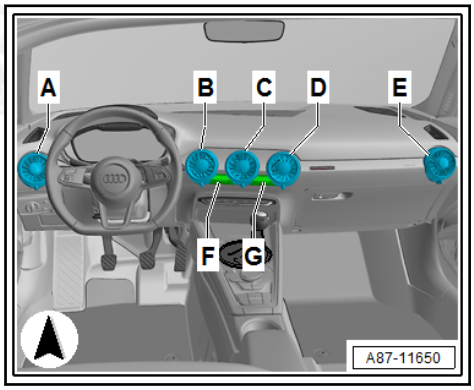
- Hook Tool -T40207-



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Preliminary Work for Removing the Center Instrument Panel Vent

Left center instrument panel vent -B-



– Remove the Fresh Air and Recirculating Air Mode Button -E781- / Defrost Button -E782- -F-. Refer to ⇒ A7.2.8 ir and Recirculating Air Mode ButtonE781/Defrost ButtonE782, Removing and Installing", page 351 .

Center instrument panel vent -C-

– Remove the Fresh Air and Recirculating Air Mode Button -E781- / Defrost Button -E782- -F-. Refer to ⇒ A7.2.8 ir and Recirculating Air Mode ButtonE781/Defrost ButtonE782, Removing and Installing", page 351 .
– Remove the Rear Window Defogger Button -E230- -G-. Refer to ⇒ R7.2.7 ear Window Defogger ButtonE230, Removing and Installing", page 350 .
– Remove the left -B- and right -D- center instrument panel vents.

Right center instrument panel vent -D-

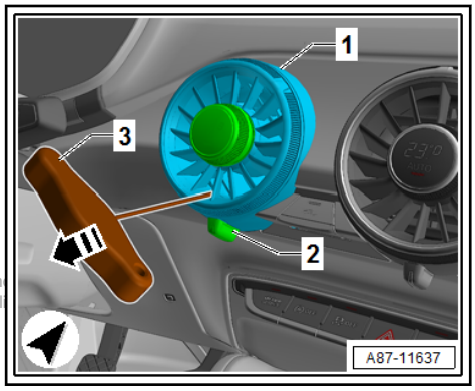
– Remove the Rear Window Defogger Button -E230- -G-. Refer to ⇒ R7.2.7 ear Window Defogger ButtonE230, Removing and Installing", page 350 .

Note

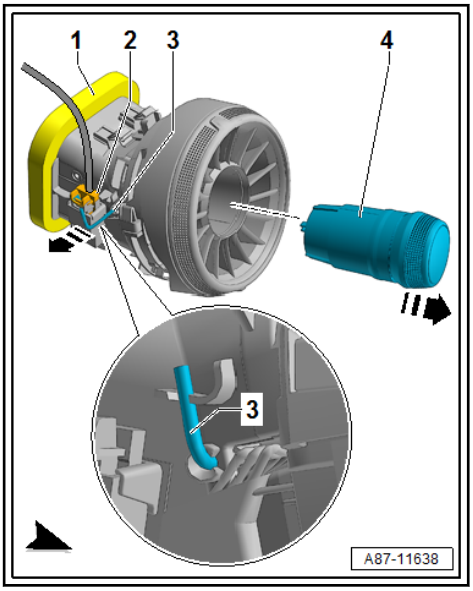
No additional components need to be removed in order to remove the left -A- and right -E- side instrument panel vents.

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Instrument Panel Vent, Removing



– Switch the ignition off.
– Versions with ignition lock: remove the ignition key.
– Turn the operating lever -2- to the “6 o'clock” position.
– Carefully guide the hook -3- (for example, Hook Tool - T40207-) between the slats and hook it in at the back of the vent -1-.
– Carefully remove the vent -1- from the installation opening in the direction of -arrow-.
– If an instrument panel vent has an installed control knob -4-, release and disconnect the connector -2-.



– Release the pin -3- and remove it in the direction of -arrow-.
– Remove the cover or display control knob -4- from the removed instrument panel vent in the direction of -arrow-.

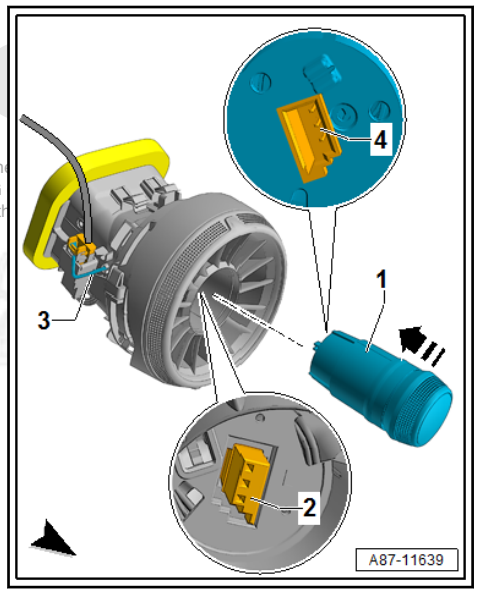
Instrument Panel Vent, Installing

Install in the reverse order of removal while noting the following:

– There are different versions of the instrument panel vents depending on the component location. Pay attention to the correct arrangement. Refer to the ⇒ Electronic Parts Catalog (ETKA).
– Check the foam seal -1- on the instrument panel vent for damage and proper adhesion.

– If the instrument panel vent has a display control knob, check the electrical connections in the instrument panel vent -2- and on the display control knob -4- for damage and contamination.

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– Insert the display control knob (or cover) -1- into the instrument panel vent on the proper side in the direction of -arrow-. While doing so, pay attention to the connectors -2 and 4-.

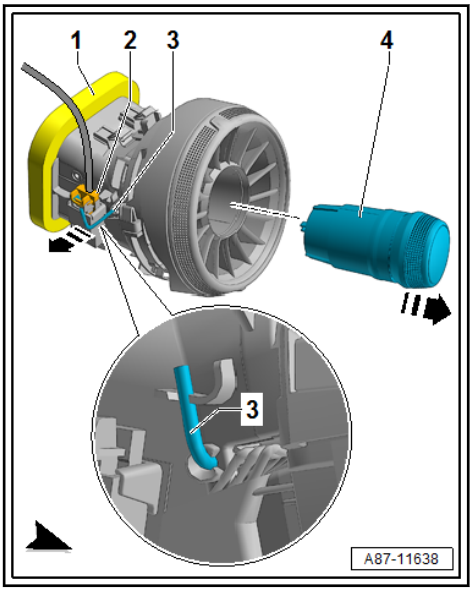
Note

The various display control knobs and instrument panel vents are coded to each other through groove and tongue connections, therefore pay attention to the correct allocation of these components to each other. Refer to the ⇒ Electronic Parts Catalog (ETKA).

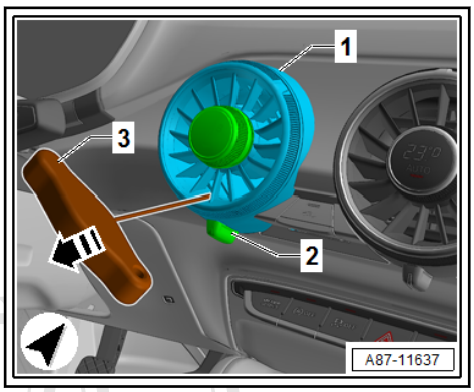
– Slide the display control knob (or cover) -1- all the way into the instrument panel vent and secure it with the pin -3-.

– Secure the pin -3-.

– If the instrument panel vent has an installed display control knob -4-, connect the connector -2-.



– Turn the operating lever -2- to the “6 o'clock” position.



– Slide the instrument panel vent -1- all the way into the instrument panel.

Install the remaining components.

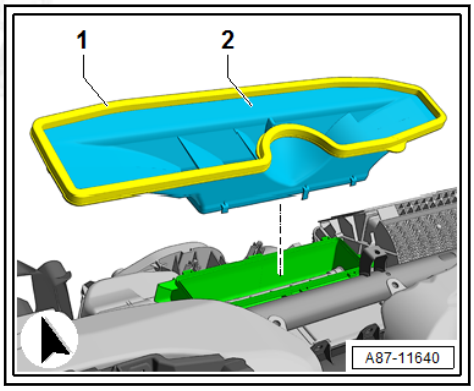
Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

Check the heating and A/C system function.

6.2.4 Defroster Vent Air Duct, Removing and Installing

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Removing



– Remove the instrument panel. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Instrument Panel, Removing and Installing.

– Release the retainers for the heater and A/C unit air duct.

Note

The air duct -2- is currently secured to the heater and A/C unit by five retaining tabs (two in the front and three in the back).

– Remove the air duct -2- upward.

Installing

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Install in the reverse order of removal while noting the following:

– Replace damaged or faulty foam seals -1-.

Note

- *The foam seal on the air duct must not be crumpled when inserting the instrument panel; otherwise the air duct to the windshield will be uneven or unsatisfactory.*
- *After installing the instrument panel, check the direction and distribution of the airflow coming out of the defroster vent to the windshield.*

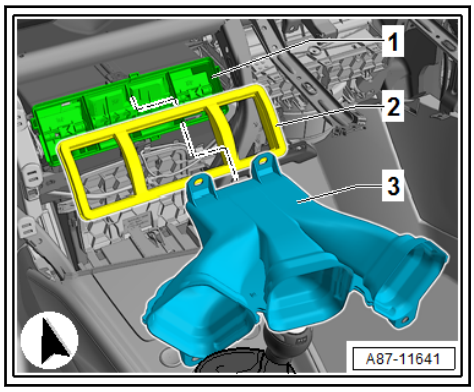
Install the remaining components.

Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

Check the heating and A/C system function.

6.2.5 Center Instrument Panel Vent Air Ducts, Removing and Installing

Removing



– Remove the instrument panel. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Instrument Panel, Removing and Installing.

– Remove the intermediate piece for the instrument panel vent air duct -2- from the heater and A/C unit -1-.

Note

The air duct -3- is a component of the instrument panel. To remove and install it, refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

Installing

Install in the reverse order of removal while noting the following:

– If the foam seal on the air duct intermediate piece -2- is damaged or faulty, replace the air duct.

– Replace a damaged or faulty air duct intermediate piece -2-.

– Replace a damaged or faulty air duct -3-.

Note

- *The foam seal on the air duct intermediate piece -2- must not be crumpled when inserting the instrument panel. This will cause the air duct to the instrument panel vents to be uneven or unsatisfactory.*
- *After installing the instrument panel, check the direction and distribution of the airflow coming out of the instrument panel vents.*

– Make sure that the guides on the air duct are positioned correctly in the mounts.

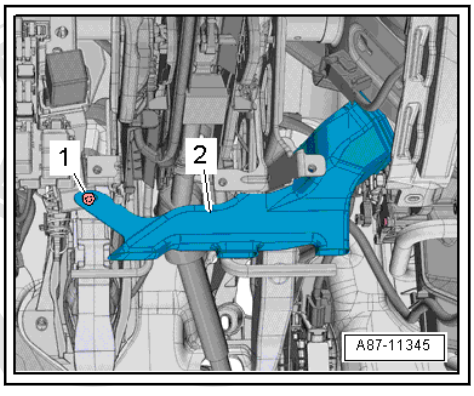
Install the remaining components.

Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

Check the heating and A/C system function.

6.2.6 Driver Side Footwell Vent, Removing and Installing

Removing



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WARNING

Risk of injury by the knee airbag.

- *Before working in an area with pyrotechnic components, the person must "discharge static electricity". Pay attention to the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 00; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components (Body Interior; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components).*

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

– Remove the driver side instrument panel cover (or knee airbag). Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments/Covers; Driver Side Instrument Panel Cover, Removing and Installing.

– Remove the expanding rivet -1- (or screw; there are different fasteners).

– Remove the footwell vent -2- (driver side).

Installing

Install in reverse order of removal.

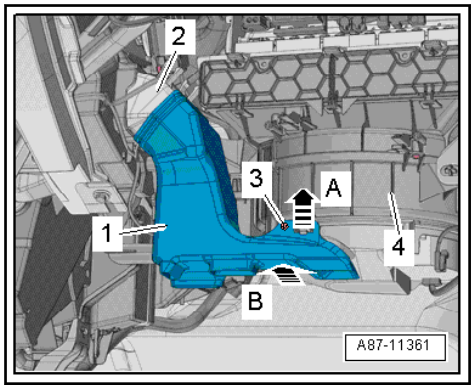
Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

Check the heating and A/C system function.

6.2.7 Front Passenger Side Footwell Vent, Removing and Installing

Removing

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– Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments and Covers; Glove Compartment, Removing and Installing.

– Remove the bolt -3-, if equipped.

– Release the securing tab in the direction of -arrow A-, remove the front passenger side footwell vent -1- in the direction of -arrow B- from the air distribution housing -4- and remove from the vent -2-.

Installing

Install in reverse order of removal.

6.3 Air Ducts, Removing and Installing

⇒ A6.3.1 ir Duct with Left Side Window Defroster Door MotorV409, Removing and Installing", page 295

⇒ A6.3.2 ir Duct with Right Side Window Defroster Door MotorV410, Removing and Installing", page 296

6.3.1 Left Air Duct with Left Side Window Defroster Door Motor -V409-, Removing and Installing

Removing

WARNING

Risk of injury by the knee airbag.

- *Before working in an area with pyrotechnic components, the person must "discharge static electricity". Pay attention to the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 00; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components (Body Interior; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components).*

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

LHD vehicle

– Remove the driver side instrument panel cover (or knee airbag). Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments/Covers; Driver Side Instrument Panel Cover, Removing and Installing.

RHD vehicles

– Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments and Covers; Glove Compartment, Removing and Installing.

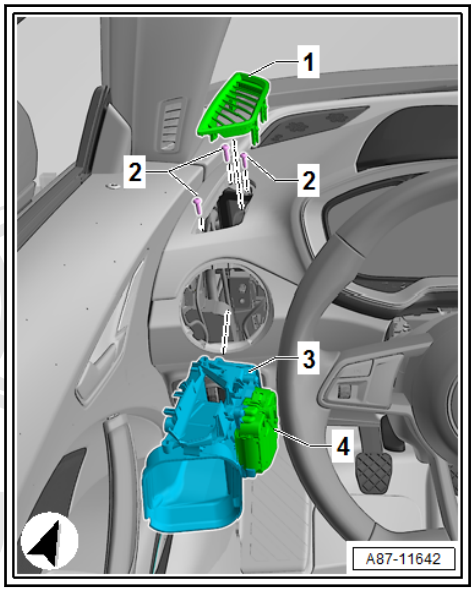
– Remove the instrument panel left support. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Instrument Panel, Removing and Installing.

Continuation for All Vehicles

– Remove the left instrument panel vent. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 .

– Remove the left side defroster vent -1-. Refer to ⇒ D6.2.2 efroster Vent, Removing and Installing", page 287 .

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– Remove the screws -2- (tightening specification: 1 Nm).
– Detach the left air duct -3- with the Left Side Window Defroster Door Motor -V409- -4- from the air duct in the instrument panel and pivot it downward.
– Disconnect the connector from the Left Side Window Defroster Door Motor -V409- -4-. Refer to ⇒ L4.10 eft Side Window Defroster Door MotorV409 with Left Front Defroster/Upper Body Vent Shut-Off Door Motor Position SensorG318, Removing and Installing", page 200 .
– Remove the Left Side Window Defroster Door Motor -V409- from the air duct -3-. Refer to ⇒ L4.10 eft Side Window Defroster Door MotorV409 with Left Front Defroster/Upper Body Vent Shut-Off Door Motor Position SensorG318, Removing and Installing", page 200 .

Installing

Install in the reverse order of removal while noting the following:

– Replace any damaged or faulty foam seals.

Install the remaining components.

Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

Check the heating and A/C system function.

6.3.2 Right Air Duct with Right Side Window Defroster Door Motor -V410-, Removing and Installing

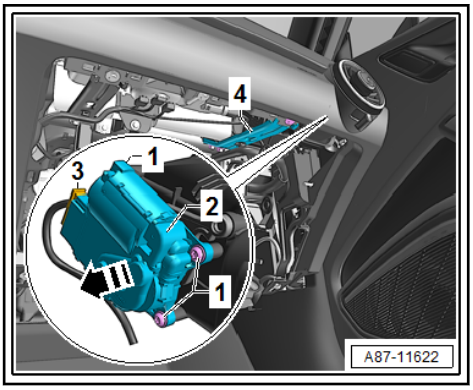
Removing

– Switch the ignition off.
– Versions with ignition lock: remove the ignition key.
– Remove the right instrument panel vent. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 .

LHD vehicle

– Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments and Covers; Glove Compartment, Removing and Installing.

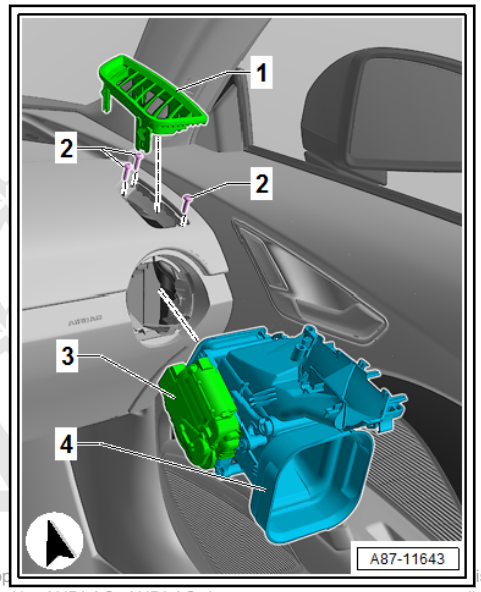
– Remove the instrument panel support -4- (screw tightening specification: 3 Nm). Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.



RHD vehicles

– Remove the driver side instrument panel cover. Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments and Covers; Driver Side Instrument Panel Cover, Removing and Installing.

Continuation for All Vehicles



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– Remove the right side defroster vent -1-. Refer to ⇒ D6.2.2 efroster Vent, Removing and Installing", page 287 .
– Remove the screws -2- (tightening specification: 1 Nm).
– Detach the right air duct -4- with the Right Side Window Defroster Door Motor -V410- -3- from the air duct in the instrument panel and pivot it downward.
– Disconnect the connector from the Right Side Window Defroster Door Motor -V410- -3-. Refer to ⇒ R4.11 ight Side Window Defroster Door MotorV410 with Right Front Defroster/Upper Body Vent Shut-Off Door Motor Position SensorG317, Removing and Installing", page 202 .
– Remove the Right Side Window Defroster Door Motor -V410- from the air duct -4-. Refer to ⇒ R4.11 ight Side Window Defroster Door MotorV410 with Right Front Defroster/Upper Body Vent Shut-Off Door Motor Position SensorG317, Removing and Installing", page 202 .

Installing

Install in the reverse order of removal while noting the following:

– Replace any damaged or faulty foam seals.

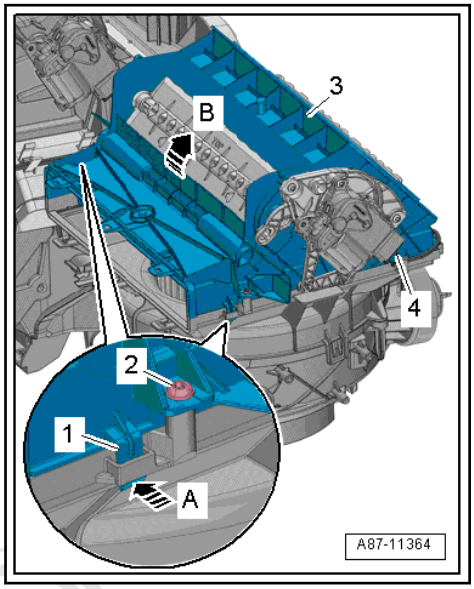
Install the remaining components.

Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

Check the heating and A/C system function.

6.4 Air Intake Duct, Removing and Installing

Removing



– Remove the heater and A/C unit. Refer to ⇒ a5.9 nd A/C Unit, Removing and Installing”, page 239 .

– Remove the dust and pollen filter. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing”, page 247 .

– Disconnect the connector -4- and free up the wiring harness.

– Remove the bolts -2-.

– Release the tabs -1- in the direction of -arrow A-.

– Pivot the air intake duct -3- upward in the direction of -arrow B- and disengage.

Installing

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Install in reverse order of removal.

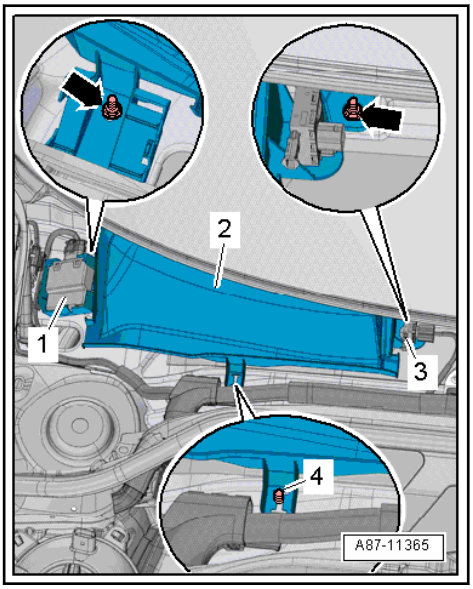
- Install the remaining components.
- Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
- Check the heating and A/C system function.

Tightening Specifications

♦ Refer to ⇒ -5.1 Heater and A/C Unit”, page 209

6.5 Rain Water Drain Channel, Removing and Installing

Removing



– Remove the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; (Overview - Plenum Chamber Cover).

– If installed, remove the Structure Borne Sound Control Module -J869- -1-. Refer to ⇒ Rep. Gr. 23; Sensors (Overview - Structure-Borne Sound Actuator and Structure Borne Sound Control Module) or ⇒ Rep. Gr. 24; Sensors (Overview - Structure-Borne Sound Actuator and Structure Borne Sound Control Module).

– If installed, disconnect the connector -3- from the Air Quality Sensor -G238-.

– Remove the nuts -arrows-.

– Remove the rain water drain channel -2- from the threaded pin -4- and remove it from the plenum chamber.

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Note

- *If the rain water drain channel is damaged or installed incorrectly, water can enter the fresh air intake. This can lead to complaints regarding odor coming from the heater/A/C system and/or moisture in the vehicle interior.*
- *If the plenum chamber cover is damaged or incorrectly installed, water can enter the fresh air intake via the rain water drain channel.*

Installing

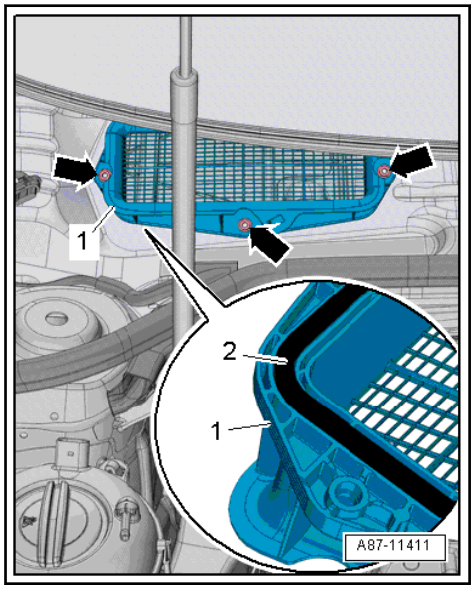
Install in reverse order of removal.

Tightening Specifications

- Refer to ⇒ Fig. ""Tightening specification for the nuts on the rain water drain channel"", page 85

6.6 Fresh Air Intake, Removing and Installing

Removing



– Remove the rain water drain channel. Refer to ⇒ W6.5 ater Drain Channel, Removing and Installing", page 299 .
– Remove the nuts -arrows-.
– Remove the fresh air intake -1- from the plenum chamber.

Note

If the fresh air intake grille is damaged or installed incorrectly, water can enter the fresh air intake. This can lead to complaints regarding odor coming from the heater/A/C system and/or moisture in the vehicle interior.

Installing

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Install in the reverse order of removal while noting the following:

– Check the bonded seal -2- between the fresh air intake and the body for damage.

Tightening Specifications

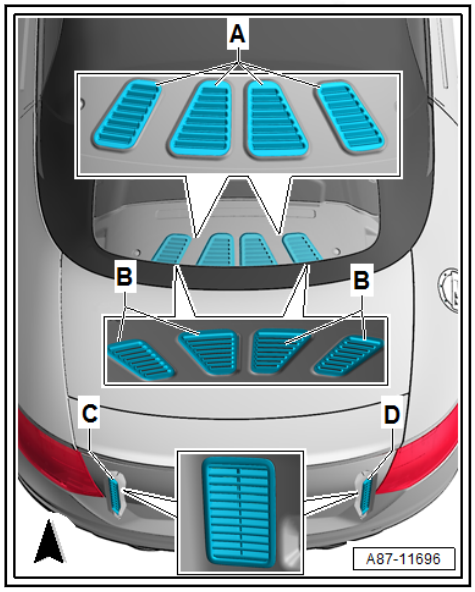
♦ Refer to ⇒ Fig. ""Tightening specification for the nuts on the fresh air intake"", page 84

6.7 Vehicle Interior Forced Air Extraction, Checking

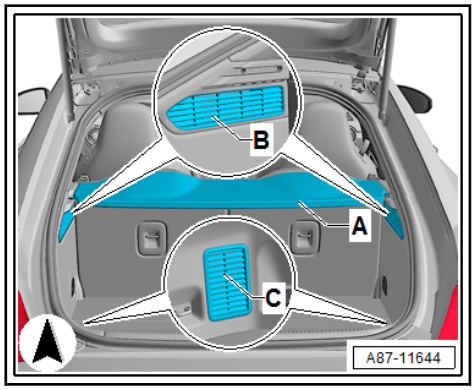
Note

- *Depending on the vehicle version, the airflow from the vehicle interior into the luggage compartment is routed differently.*
- *The Audi TT Roadster vehicle interior is ventilated via the luggage compartment openings -B-, which are built into the convertible top compartment trim -A-. The air then flows from the luggage compartment to the forced air extraction vent frames via the openings in the luggage compartment side trim panels -C and D-.*

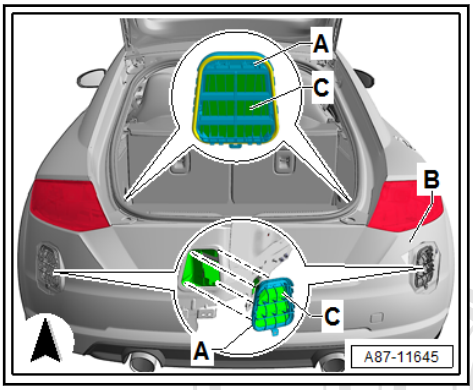
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The Audi TT Coupe vehicle interior is ventilated via the openings in the area between the rear shelf -A-, the luggage compartment side trim panels and the rear lid.



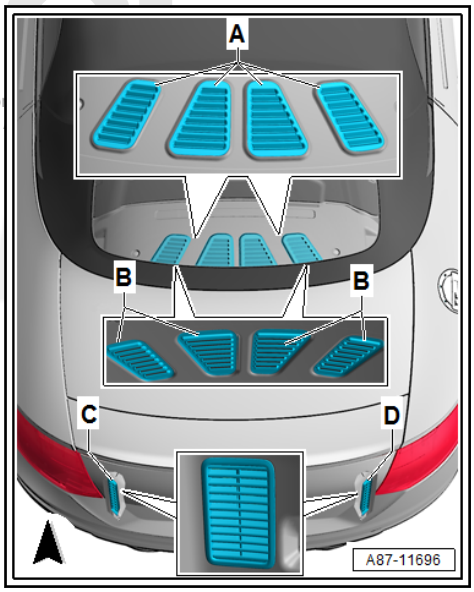
- *The air then flows from the luggage compartment into the luggage compartment side trim panels -B and C- via the openings on the Audi TT Coupe (there are different versions; here the luggage compartment side trim panel leads to the forced air extraction vent frames).*
- *Depending on the vehicle version, there is different airflow routing and forced air extraction vent frames. Refer to the ⇒ Electronic Parts Catalog (ETKA). Two vent frames -A- (on the left and right) are installed on the Audi TT.*



Vent Openings in Luggage Compartment, Checking, Audi TT Roadster:

– Check the airflow through the built-in vent openings in the luggage compartment side trim panels -C and D- on the left and right sides.

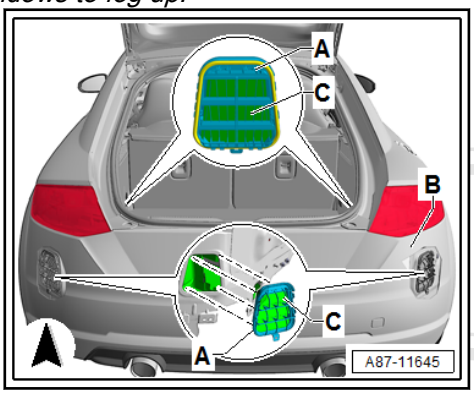
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– Check the airflow through the left and right openings -B- that are built into the convertible top compartment trim -A-.

Note

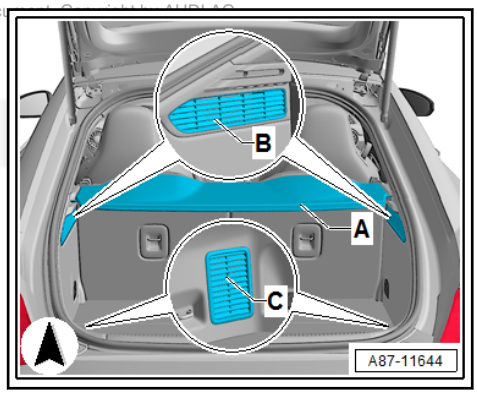
- *Blocked or plugged vent openings -B- in the convertible top compartment trim -A- or in the luggage compartment side trim panels -C and D- or plugged air ducts (behind the luggage compartment side trim panels) can cause the vehicle windows to fog up.*
- *Blocked or plugged forced air extraction vent frames -A- can cause the vehicle windows to fog up.*



Vent Openings in Luggage Compartment, Checking, Audi TT Coupe:

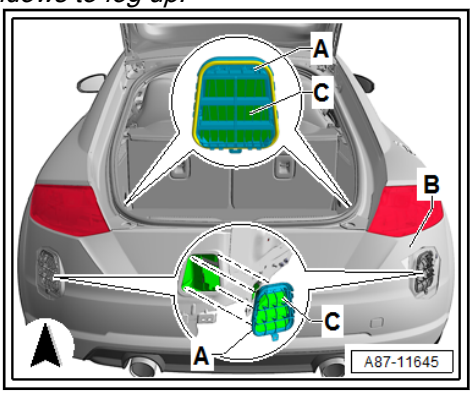
– Check the airflow through the built-in vent openings in the luggage compartment side trim panels -B and C- on the left and right sides.

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Note

- *Blocked or plugged vent openings in the luggage compartment side trim panels -B and C- or plugged air ducts (behind the luggage compartment side trim panels) can cause the vehicle windows to fog up.*
- *Blocked or plugged forced air extraction vent frames -A- can cause the vehicle windows to fog up.*

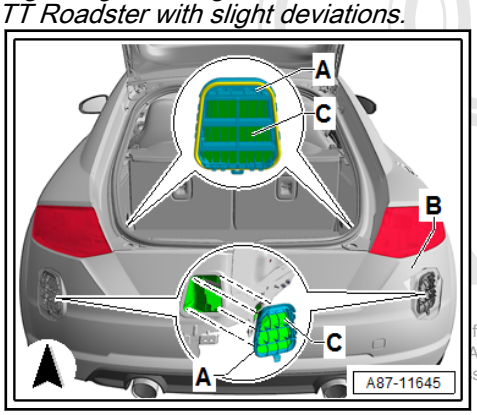


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Forced Air Extraction Vent Frames, Checking (All Vehicles):

Note

The following illustrations show the layout in the Audi TT Coupe. The information regarding checking and the test itself also applies to the Audi TT Roadster with slight deviations.

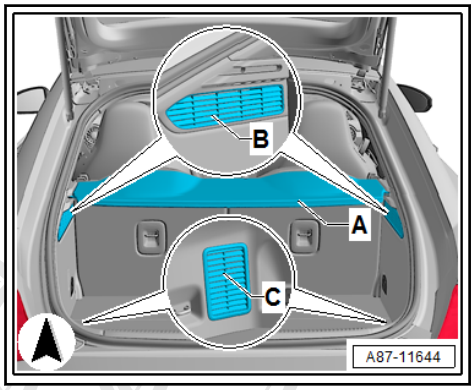


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- *There is currently no cap in the left luggage compartment side trim panels on the Audi TT. Depending on the version, a removable vent grille may be installed in order to check the sealing lips -C- of the left vent frame. For a vehicle with a left luggage compartment side trim panel without a removable vent grille, the sealing lips -C- can only be checked from the inside with the luggage compartment side trim panel removed. Luggage compartment side trim panel, removing. Refer to ⇒ Body Interior; Rep. Gr. 70; Luggage Compartment Trim Panels; Overview - Luggage Compartment Side Trim Panel.*
- *There is currently no cap in the right luggage compartment side trim panels on the Audi TT. Therefore the sealing lips -C- on the vent frames can only be checked from the inside with the luggage compartment side trim panel removed.*
- *For vehicles without a cap in the luggage compartment side trim panel, the function of the sealing lips -C- can also be checked from the outside with the tail lamps removed (from above using a mirror or an endoscope, if the bumper cover -B- is installed). Remove the tail lamps. Refer to ⇒ Electrical Equipment; Rep. Gr. 94; Tail Lamps.*
- *Stuck sealing lips -C- can cause the vehicle windows to fog up.*
- *The sealing lips -C- in the vent frame -A- must move freely and close by themselves.*
- *Due to additional built-in components, blocked or plugged air ducts (between the luggage compartment side trim panels and the vehicle body) to the vent frames -A- can cause the vehicle windows to fog up.*

– Make sure the vent frames -A- are not obstructed and check the function of the sealing lips -C-.

– If the vehicle interior ventilation is to function properly, the vent grilles installed in the luggage compartment side trim panels -B and C- must not be blocked.



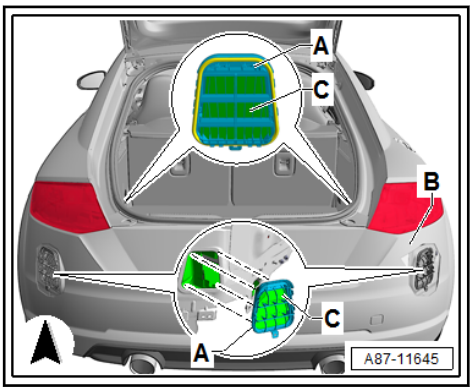
- The air must be able to flow via the vent grilles -B and C- installed in the luggage compartment side trim panels to the forced air extraction vent frames and then from there outward.

6.8 Vehicle Interior Forced Air Extraction, Removing and Installing

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Note

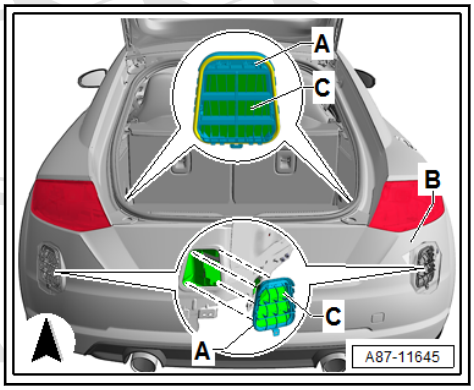
Depending on the vehicle version, there is different airflow routing and forced air extraction vent frames -A-. Refer to the ⇒ Electronic Parts Catalog (ETKA). The following illustrations show the versions as they are installed in the Audi TT Coupe. Removing and installing the forced air extraction is performed the same way on the Audi TT Roadster.



- *These illustrations show the components as they are installed on the Audi TT Coupe. These deviate on other versions of the vehicle.*
- *For vehicles without a cover in the luggage compartment side trim panel (current Audi TT series production), the side trim panel (left and/or right) is to be removed (so that the vent frame tabs can be loosened to remove) if the forced air extraction vent frame -A- is going to be reused after removing. Luggage compartment side trim panel, removing. Refer to ⇒ Body Interior; Rep. Gr. 70; Luggage Compartment Trim Panels; Overview - Luggage Compartment Side Trim Panel.*

Removing

– Remove the left and/or right tail lamp. Refer to ⇒ Electrical Equipment; Rep. Gr. 94; Tail Lamps.



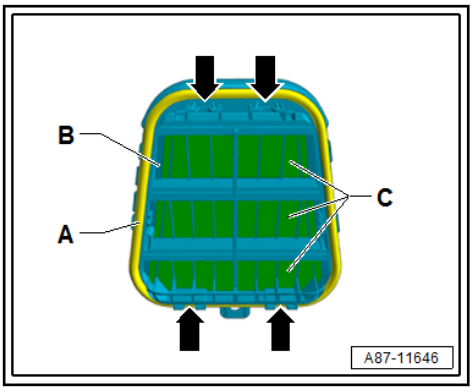
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Note

The rear bumper cover -B- does not need to be removed (depending on the vehicle equipment, additional work procedures would be necessary after installing. Refer to ⇒ Body Exterior; Rep. Gr. 63; Rear Bumper).

If the removed vent frame is not going to be reused.

– Remove the vent frame -A- from the opening from the outside (doing so destroys the vent frame).



– If necessary, detach the respective rear wheel housing liner from the vehicle and remove the vent frame -B-. Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Rear Wheel Housing Liner, Removing and Installing.

If the removed vent frame is going to be reused.

Left vent frame on a vehicle with a luggage compartment side trim panel with a removable vent grille

– Remove the vent grille. Refer to ⇒ Body Interior; Rep. Gr. 70; Luggage Compartment Trim Panels; Overview - Luggage Compartment Side Trim Panel.

Removing the left vent frame on a vehicle with a luggage compartment side trim panel without a removable vent grille

– Remove the left luggage compartment side trim panel (the luggage compartment trim does not currently have a cap). Refer to ⇒ Body Interior; Rep. Gr. 70; Luggage Compartment Trim Panels; Overview - Luggage Compartment Side Trim Panel.

Removing the right vent frame

– Remove the right luggage compartment side trim panel (the luggage compartment trim does not currently have a cap). Refer to ⇒ Body Interior; Rep. Gr. 70; Luggage Compart-

ment Trim Panels; Overview - Luggage Compartment Side Trim Panel.

All Vehicles

– Release the retainers -arrows- and push the forced air extraction ventilation vent frame -B- outward from the body opening.
– If necessary, detach the respective rear wheel housing liner from the vehicle and remove the vent frame -B-. Refer to ⇒ Body Exterior; Rep. Gr. 66; Wheel Housing Liner; Rear Wheel Housing Liner, Removing and Installing.

Installing

Install in the reverse order of removal while noting the following:

– Check the seal -A- for damage.
– Install the vent frame -B- on the proper side so that the sealing lips -C- close correctly.

Note

The vent frame -B- can only be installed in one position to ensure that the sealing lips -C- close correctly. The large radius -arrow- is at the top on these vehicles.

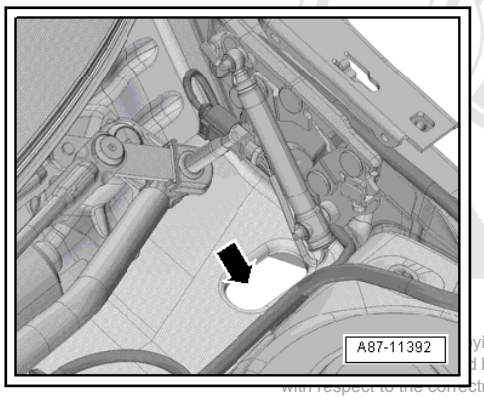
– Press the forced air extraction into the body opening until all retainers audibly engage.

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6.9 Plenum Chamber Water Drain, Checking

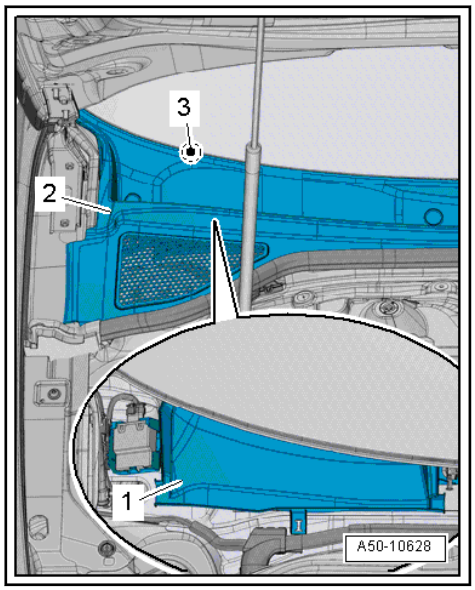
Note

The water drainage from the plenum chamber may be impaired by deposits (leaves, various tree needles, etc.) accumulating in the water drain -arrow-. The water level in the plenum chamber then rises if the vehicle is taken to a car wash or if there is heavy rainfall. Water enters the heater and A/C unit via the fresh air intake and is blown onto the evaporator with the air by the fresh air blower.



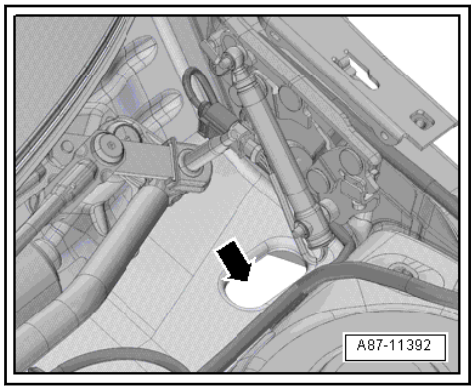
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- *If the water drains -arrow- on the left and/or right are dirty with leaves and tree needles, the water drain may freeze in the winter and water can no longer drain. After a short drive, the heat emitted from the engine and exhaust system melts the ice in the drains again and water may have drained off again before the vehicle arrives at the workshop.*
- *If the plenum chamber cover -2- is damaged or incorrectly installed, water may enter the fresh air intake via the rain water drain channel -1-. This can lead to complaints regarding odor coming from the heater/A/C system and/or moisture in the vehicle interior.*



The plenum chamber cover must be completely engaged in the windshield frame -3-. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; (Overview - Plenum Chamber Cover).

Procedure



– Remove the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; (Overview - Plenum Chamber Cover).

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– Check the water drains -arrow- for debris.

• The water must be able to drain.

– Clean the contaminated water drains.

7 Display Control Head

⇒ L7.1 ocation Overview - Display Control Head", page 311

⇒ D7.2 isplay Control Heads, Removing and Installing", page 331

7.1 Component Location Overview - Display Control Head

⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311

⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320

7.1.1 Component Location Overview - Display Control Heads, Vehicles with Manual Climate Control System

"Basic" A/C System Version

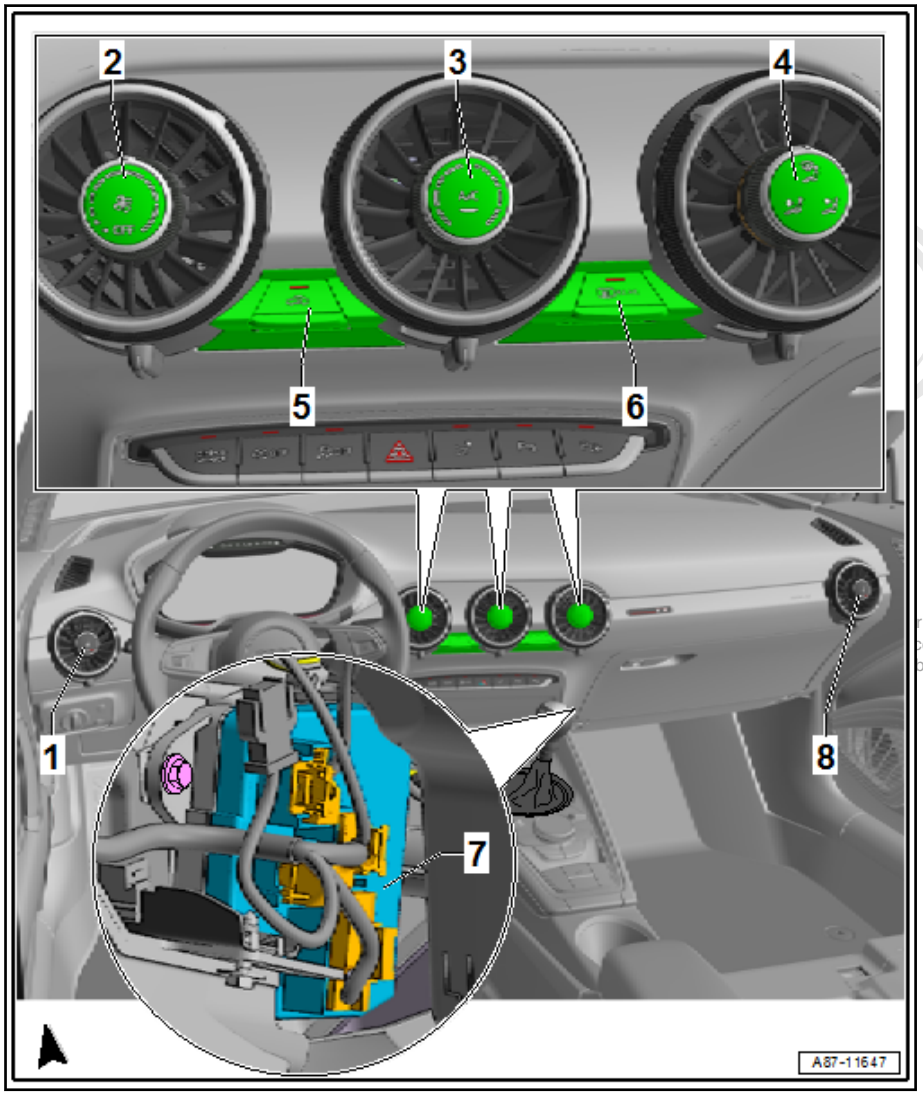
Note

- *This illustration shows the layout of the Front A/C Display Control Head 2 -E775- and Front A/C Display Control Head 4 -E777- as well as the Rear Window Defogger Button -E230- and Fresh Air and Recirculating Air Mode Button -E781- on a LHD vehicle. The layout may be different on RHD vehicles.*
- *The various display control knobs and instrument panel vents are coded to each other through groove and tongue connections, therefore pay attention to the correct allocation of these components to each other. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

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1 - Front A/C Display Control Head 1 -E774-

- Left regulator and button for seat heating (and neck heating)
- Installed in the left instrument panel vent
- Removing and Installing. Refer to ⇒ K7.2.2 nob for Seat Heating (and Neck Heating) on Front A/C Display Control Head 1E774, Removing and Installing", page 333 .
- Illuminated LEDs indicate the selected setting for the seat heating (and/or neck heating)
- The selected setting can be set back one level after a pre-set time.
- Check the activation function using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-.
- For more information and description of the function, refer to ⇒ H2.4 eating", page 11 and the ⇒ Owner's Manual.



Note

- *The Front A/C Display Control Head 1 -E774- exchanges information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The Climatronic Control Module -J255- activates the seat heating (and/or neck heating) according to the received requests.*
- *Only a place holder (a cover) that has no function is installed on vehicles without the optional "seat heating" or "seat and neck heating" equipment instead of the Front A/C Display Control Head 1 -E774-.*

2 - Front A/C Display Control Head 2 -E775-

- Knob for presetting the speed of the Fresh Air Blower -V2-
- Installed in the left center instrument panel vent (may be installed in the right center instrument panel vent on RHD vehicles).
- With an Off button for switching the heating and A/C system on and off

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- ❑ Removing and Installing. Refer to ⇒ K7.2.3 nob for Fresh Air Blower Speed (and A/C System Operation) on Front A/C Display Control Head 2E775, Removing and Installing", page 336 .
- ❑ Version for vehicles with a manual climate control system. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Illuminated LED indicates the selected function.

Note

- ♦ *The Front A/C Display Control Head 2 -E775- exchanges information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The Climatronic Control Module -J255- activates the various A/C system components according to the received requests.*
- ♦ *There are different versions on vehicles with a manual or an automatic climate control system. Ensure the correct version and allocation. Interchanging is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- ♦ *Check the activation function using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the Vehicle Electrical System Control Module -J519-.*
- ♦ *Description of the function. Refer to the ⇒ Owner's Manual.*

3 - Front A/C Display Control Head 3 -E776-

- ❑ Preset knob for temperature and A/C system operation
- ❑ Installed in the center instrument panel vent.
- ❑ Removing and Installing. Refer to ⇒ K7.2.4 nob for Temperature (and A/C System Operation) on Front A/C Display Control Head 3E776, Removing and Installing", page 339 .
- ❑ With the A/C button to switch the A/C compressor activation on and off
- ❑ Version for vehicles with a manual climate control system. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ There are different versions and functions depending on the A/C system version
- ❑ Removing and Installing. Refer to ⇒ K7.2.4 nob for Temperature (and A/C System Operation) on Front A/C Display Control Head 3E776, Removing and Installing", page 339 .
- ❑ The Front A/C Display Control Head 3 -E776- transmits the selected temperature and desired A/C system operating mode to the Climatronic Control Module -J255-
- ❑ Illuminated LED indicates the "A/C compressor on" function is selected
- ❑ For vehicles with an auxiliary heater, it is activated depending on the selected temperature, coolant temperature, etc. if additional heating output is necessary to reach the desired temperature. Refer to ⇒ H2.3 eater Operation with Diesel Engine (Not for North American Market)", page 6 .

Note

- ♦ *The Front A/C Display Control Head 3 -E776- exchanges information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The Climatronic Control Module -J255- activates the various A/C sys-*

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tem components according to the received requests.

- *There are different versions on vehicles with a manual or an automatic climate control system. Ensure the correct version and allocation. Interchanging is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Check the activation function using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).*
- *Description of the function. Refer to the ⇒ Owner's Manual.*

4 - Front A/C Display Control Head 4 -E777-

- ❑ Preset knob for air distribution and defrost mode
- ❑ Installed in the right center instrument panel vent (may be installed in the left center instrument panel vent on RHD vehicles).
- ❑ Version for vehicles with a manual climate control system. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ f7.2.5 or Air Distribution on Front A/C Display Control Head 4E777, Removing and Installing", page 343 .

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Note

- *The windshield, door window and rear window may fog up in recirculating air mode if the A/C system is switched off, for example (the air moisture in the vehicle interior increases and then condenses on the vehicle windows. The A/C system does not dehumidify the air).*
- *To defog the vehicle windows as quickly as possible, only restricted recirculating air mode is possible when the air distribution control knob on the Front A/C Display Control Head 4 -E777- is set to the "air to windshield" position. The Climatronic Control Module -J255- switches to fresh air mode and the A/C system operation is activated if possible (the A/C compressor is activated). The illumination of the indicator lamp in the A/C button (installed in the Front A/C Display Control Head 2 -E775-) indicates that the A/C system is on. If operating the A/C system is not desired in the "air to windshield" setting, it can be switched off again by pressing the A/C button. Refer to the ⇒ Owner's Manual.*
- *The Front A/C Display Control Head 4 -E777- exchanges information with the Climatronic*

Control Module -J255- via a "LIN Bus" data wire. The Climatronic Control Module -J255- activates the various A/C system components according to the received requests.

- *Check the activation function using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the Vehicle Electrical System Control Module -J519-.*
- *Description of the function. Refer to the ⇒ Owner's Manual.*

5 - Fresh Air and Recirculating Air Mode Button -E781-

- ❑ Illuminated LED indicates the "recirculating air mode" function is selected.
- ❑ The "recirculating air mode" function is canceled when setting the air distribution to "defrost" (air to the windshield).
- ❑ Removing and Installing. Refer to ⇒ A7.2.8 ir and Recirculating Air Mode ButtonE781/Defrost ButtonE782, Removing and Installing", page 351 .

Note

- *The Climatronic Control Module -J255- receives a signal from the Fresh Air and Recirculating Air Mode Button -E781- when the "recirculating air mode button" is pressed. The Climatronic Control Module -J255- then switches the A/C system to recirculating or fresh air mode.*
- *If the A/C system is working in fresh air mode when the Fresh Air and Recirculating Air Mode Button -E781- is pressed, the Climatronic Control Module -J255- activates the Recirculation Door Motor -V113- so that it moves into the "recirculating air mode" position. The Climatronic Control Module -J255- then activates the indicator lamp in the Fresh Air and Recirculating Air Mode Button -E781- The A/C compressor activation is switched on at the same time, and the indicator lamp in the A/C button for the Front A/C Display Control Head 2 -E775- comes on. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *If the A/C system is working in fresh air mode when the Fresh Air and Recirculating Air Mode Button -E781- is pressed and "defrost mode" is activated at the same time via the Defrost Button -E782-, "defrost mode" is canceled and the Climatronic Control Module -J255- activates*

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the Recirculation Door Motor -V113- so that it moves into the “recirculating air mode” position. The Climatronic Control Module -J255- no longer activates the indicator lamp in the Fresh Air and Recirculating Air Mode Button -E781-. Use the ⇒ Vehicle diagnostic tester in “Guided Fault Finding” function and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

- *If the A/C system is working in recirculating air mode when the Fresh Air and Recirculating Air Mode Button -E781- is pressed, the Climatronic Control Module -J255- activates the Recirculation Door Motor -V113- so that it moves into the “fresh air mode” position and the indicator lamp in the Fresh Air and Recirculating Air Mode Button - E781- is switched off. Use the ⇒ Vehicle diagnostic tester in “Guided Fault Finding” function and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *If the A/C system is working in “recirculating air mode” and the “defrost mode” function is selected on the preset knob for air distribution and defrost mode, the “recirculating air mode” function is canceled. The Climatronic Control Module -J255- activates the Recirculation Door Motor -V113- so that it moves into the “fresh air mode” position and the indicator lamp in the Fresh Air and Recirculating Air Mode Button -E781- is switched off. Use the ⇒ Vehicle diagnostic tester in “Guided Fault Finding” function and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *An active recirculating air mode is canceled on most vehicles when the ignition is switched off. Depending on the version and coding of the Climatronic Control Module -J255-, an active recirculating air mode can be stored for certain markets when the ignition is switched off and then reactivated when the ignition is switched on. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.*
- *Check the activation function using the ⇒ Vehicle diagnostic tester in the “Guided Fault*

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Finding" function for the Vehicle Electrical System Control Module -J519-.

- *Description of the function. Refer to the ⇒ Owner's Manual.*

6 - Rear Window Defogger Button -E230-

- ❑ Illuminated LEDs indicate the "Rear window defogger on" function is selected.
- ❑ Version for vehicles with a manual climate control system. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ The rear window defogger can stay switched on by pressing and holding the button
- ❑ Removing and Installing. Refer to ⇒ R7.2.7 ear Window Defogger ButtonE230, Removing and Installing", page 350 .

Note

- *The Rear Window Defogger Button -E230- sends a signal to the Climatronic Control Module -J255- when the button is pressed. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *The Climatronic Control Module -J255- then sends the information that the Rear Window Defogger Button -E230- was pressed to the Vehicle Electrical System Control Module -J519- via the data Bus. The Vehicle Electrical System Control Module -J519- then switches the activation of the Rear Window Defogger -Z1- on or off (directly or via the Rear Window Defogger Relay -J9-, depending on equipment. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations). The Climatronic Control Module -J255- switches the indicator lamp in the Rear Window Defogger Button -E230- on or off.*
- *Check the activation function using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the Vehicle Electrical System Control Module -J519-.*
- *Description of the function. Refer to the ⇒ Owner's Manual.*
- *The Rear Window Defogger -Z1- is activated by the Vehicle Electrical System Control Module -J519- (via the Rear Window Defogger Relay -J9-) only when the engine is running. If the engine is not running, there is no activation or response from the Vehicle Electrical System Control Module -J519-. The indicator lamp in the button does not illuminate or goes out again shortly after pressing it.*

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Refer to the ⇒ Owner's Manual and use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

- *The Rear Window Defogger -Z1- is switched off automatically by the Vehicle Electrical System Control Module -J519- after the operating time stored in the Vehicle Electrical System Control Module -J519- (approximately 10 minutes) has elapsed when the exterior temperature is greater than 0 °C (32 °F), for example. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to the ⇒ Owner's Manual.*
- *The Rear Window Defogger -Z1- stays switched on with outside temperatures less than 0 °C (32 °F) until the ignition is switched off (it can be switched on and off manually at any time). If the temperature becomes greater than 0 °C (32 °F) during a driving period, the Rear Window Defogger -Z1- is switched off after the operating time stored in the Vehicle Electrical System Control Module -J519- has elapsed (approximately 10 minutes). Refer to the ⇒ Owner's Manual.*
- *If the rear window defogger button is pressed for a longer period of time when turning it on, the rear window defogger remains switched on until the button is pressed again or the ignition is switched off. Refer to the ⇒ Owner's Manual.*
- *If the Vehicle Electrical System Control Module -J519- measured voltage at terminal "30" falls below a value stored in the Vehicle Electrical System Control Module -J519- (or in the Climatronic Control Module -J255-), the output is reduced or the rear window defogger switched off completely to reduce the load on the Generator -C-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *If the activation of the Rear Window Defogger -Z1- must be switched off briefly due to low voltage from the Vehicle Electrical System Control Module -J519-, the indicator lamp in the rear window defogger button remains switched on. However, if the deactivation lasts longer, the Vehicle Electrical System Control Module -J519- switches*

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off the request to activate the indicator lamp in the button and the indicator lamp goes out.

- *For vehicles with the Start/Stop System, the rear window defogger may be switched off to protect the Battery -A- when the Stop function is active. The setting for the Rear Window Defogger -Z1- activation remains stored. The rear window defogger is switched on again as soon as the engine is restarted via the Start function. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Vehicle Electrical System Control Module -J519-).*
- *The "Read measured values" function of the Guided Fault Finding for the Vehicle Electrical System Control Module -J519- (the Climatronic Control Module -J255-) shows that the rear window defogger is switched on or why there is no activation even though there is a request. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *Description of the activation function test for the rear window defogger using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the Vehicle Electrical System Control Module -J519-.*

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7 - Climatronic Control Module -J255-

- ❑ Removing and Installing. Refer to ⇒ C7.2.1 limatronic Control ModuleJ255, Removing and Installing", page 332 .
- ❑ Version for vehicles with a manual climate control system. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ The Climatronic Control Module -J255- receives information from the various controls (control heads, regulators and buttons) via data wires or direct wire connections. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ❑ The A/C system regulation is controlled via the selected presets on the controls.
- ❑ Certain presets on the controls are transmitted by the Climatronic Control Module -J255- to secondary control modules via the data Bus (for example, the activation of the rear window defogger, the seat heating, etc. to the Vehicle Electrical System Control Module -J519-). The Vehicle Electrical System Control Module -J519- reports the change request back to the Climatronic Control Module -J255- and it then activates the indicator lamps in the controls. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Note

- *There are different versions of the Climatronic Control Module -J255- (for example, for vehicles with a manual or an automatic climate control system, etc.). Ensure the correct version and allocation. Refer to the*

⇒ Electronic Parts Catalog (ETKA).

- *To check the activation function, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *Function description of the various controls and buttons. Refer to the ⇒ Owner's Manual.*
- *For vehicles with an auxiliary heater, it is activated depending on the selected temperature, coolant temperature, etc. if additional heating output is necessary to reach the desired temperature. Refer to ⇒ H2.3 eater Operation with Diesel Engine (Not for North American Market)", page 6 .*
- *Installed on the left in RHD vehicles.*

8 - Front A/C Display Control Head 5 -E778-

- ❑ Right regulator and button for seat heating (and neck heating)
- ❑ Installed in the right instrument panel vent
- ❑ Removing and Installing. Refer to ⇒ K7.2.6 nob for Seat Heating (and Neck Heating) on Front A/C Display Control Head 5E778, Removing and Installing", page 345 .
- ❑ Illuminated LEDs indicate the selected setting for the seat heating (and/or neck heating)
- ❑ The selected setting can be set back one level after a pre-set time.
- ❑ Check the activation function using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-.
- ❑ For more information and description of the function, refer to ⇒ H2.4 eating", page 11 and the ⇒ Owner's Manual.

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Note

- *The Front A/C Display Control Head 5 -E778- exchanges information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The Climatronic Control Module -J255- activates the seat heating (and/or neck heating) according to the received requests.*
- *Only a place holder (a cover) that has no function is installed on vehicles without the optional "seat heating" or "seat and neck heating" equipment instead of the Front A/C Display Control Head 1 -E774-.*

7.1.2 Component Location Overview - Display Control Heads, Vehicles with Automatic Climate Control System

"Convenience" A/C system version

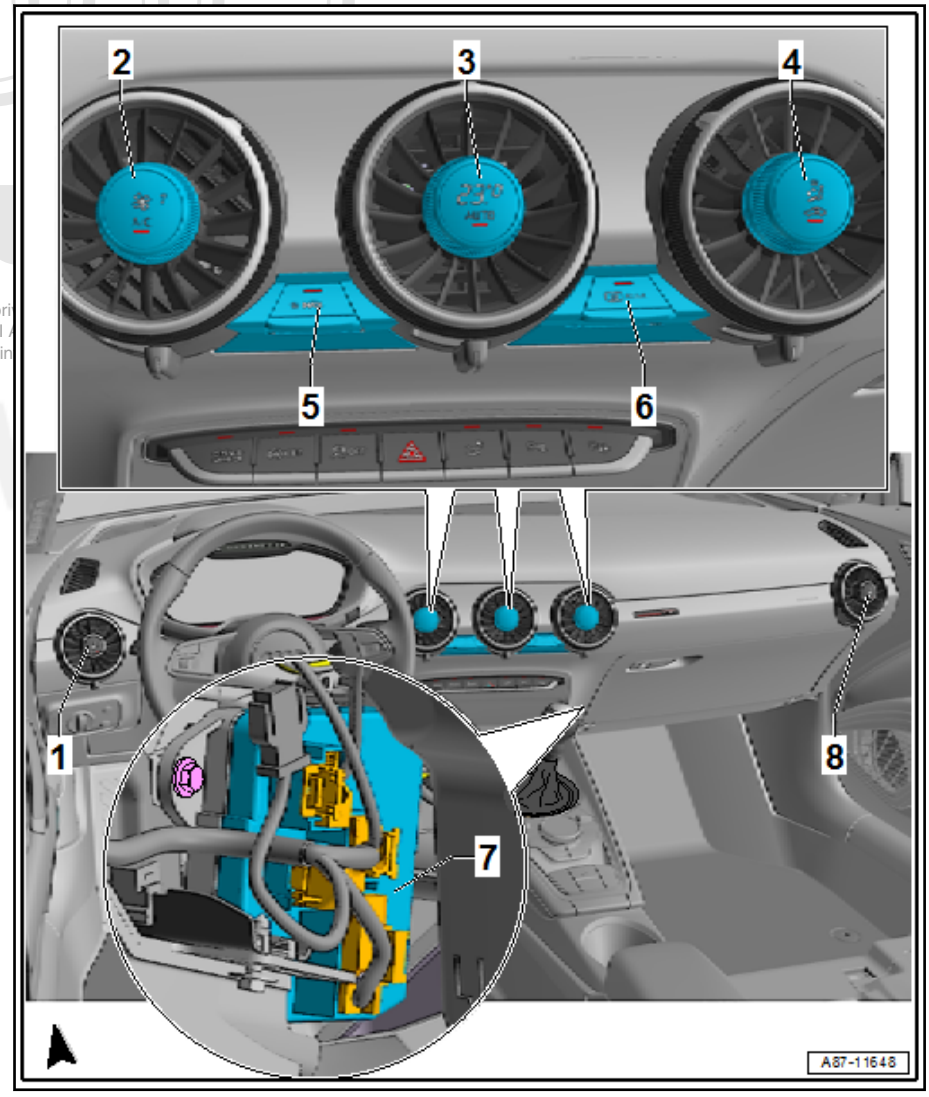
Note

- *This illustration shows the layout of the Front A/C Display Control Head 2 -E775- and Front A/C Display Control Head 4 -E777- as well as the Fresh Air and Recirculating Air Mode Button -E781- and Defrost Button -E782- on a LHD vehicle. The layout may be different on RHD vehicles.*
- *The information in the displays of the Front A/C Display Control Head 2 -E775- through the Front A/C Display Control Head 4 -E777- only appears when the ignition is switched on and goes out when the ignition is switched off.*
- *The various display control knobs and instrument panel vents are coded to each other through groove and tongue connections, therefore pay attention to the correct allocation of these components to each other. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

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1 - Front A/C Display Control Head 1 -E774-

- ❑ Left regulator and button for seat heating (and neck heating)
- ❑ Installed in the left instrument panel vent
- ❑ Removing and Installing. Refer to ⇒ K7.2.2 nob for Seat Heating (and Neck Heating) on Front A/C Display Control Head 1E774, Removing and Installing", page 333 .
- ❑ Illuminated LEDs indicate the selected setting for the seat heating (and/or neck heating)
- ❑ The selected setting can be set back one level after a pre-set time.
- ❑ Check the activation function using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-.
- ❑ For more information and description of the function, refer to ⇒ H2.4 eating", page 11 and the ⇒ Owner's Manual.



Note

- ♦ *The Front A/C Display Control Head 1 -E774- exchanges information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The Climatronic Control Module -J255- activates the seat heating (and/or neck heating) according to the received requests.*
- ♦ *Only a place holder (a cover) that has no function is installed on vehicles without the optional "seat heating" or "seat and neck heating" equipment instead of the Front A/C Display Control Head 1 -E774-.*

2 - Front A/C Display Control Head 2 -E775-

- ❑ Knob for presetting the speed of the Fresh Air Blower -V2-
- ❑ With the A/C button to switch the A/C compressor activation on and off
- ❑ Installed in the left center instrument panel vent (may be installed in the right center instrument panel vent on RHD vehicles).

- Removing and Installing. Refer to ⇒ K7.2.3 nob for Fresh Air Blower Speed (and A/C System Operation) on Front A/C Display Control Head 2E775, Removing and Installing", page 336 .
- Version for vehicles with an automatic climate control system. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- Illuminated LED indicates the "A/C compressor on" function is selected

Note

- *The Front A/C Display Control Head 2 -E775- exchanges information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The Climatronic Control Module -J255- activates the various A/C system components according to the received requests.*
- *There are different versions on vehicles with a manual or an automatic climate control system. Ensure the correct version and allocation. Interchanging is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Check the activation function using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the Vehicle Electrical System Control Module -J519-.*
- *Description of the function. Refer to the ⇒ Owner's Manual.*

3 - Front A/C Display Control Head 3 -E776-

- Preset knob for temperature and A/C system operation
- Installed in the center instrument panel vent.
- With Auto button for automatic A/C system operation
- Removing and Installing. Refer to ⇒ K7.2.4 nob for Temperature (and A/C System Operation) on Front A/C Display Control Head 3E776, Removing and Installing", page 339 .
- With the A/C button to switch the A/C compressor activation on and off
- Version for vehicles with an automatic climate control system. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- There are different versions and functions depending on the A/C system version
- Removing and Installing. Refer to ⇒ K7.2.4 nob for Temperature (and A/C System Operation) on Front A/C Display Control Head 3E776, Removing and Installing", page 339 .
- The Front A/C Display Control Head 3 -E776- transmits the selected temperature and desired A/C system operating mode to the Climatronic Control Module -J255-
- The preset temperature is shown in the installed display.
- For vehicles with an auxiliary heater, it is activated depending on the selected temperature, coolant temperature, etc. if additional heating output is necessary to reach the desired temperature. Refer to ⇒ H2.3 eater Operation with Diesel Engine (Not for North American Market)", page 6 .

Note

- *The Front A/C Display Control Head 3 -E776- exchanges information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The Climatronic Control Module -J255- activates the various A/C sys-*

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tem components according to the received requests.

- *There are different versions on vehicles with a manual or an automatic climate control system. Ensure the correct version and allocation. Interchanging is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Check the activation function using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-).*
- *Adjusting the temperature is only possible via the Front A/C Display Control Head 3 -E776- on the Audi TT. Both temperature control door motors (the Left Temperature Control Door Motor -V158- and the Right Temperature Control Door Motor -V159-) are activated together over their wide adjustment range by the Climatronic Control Module -J255- via the characteristic curves stored in the Climatronic Control Module -J255-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *Description of the function. Refer to the ⇒ Owner's Manual.*

4 - Front A/C Display Control Head 4 -E777-

- ❑ Preset knob for air distribution and for manual recirculating air mode
- ❑ Installed in the right center instrument panel vent (may be installed in the left center instrument panel vent on RHD vehicles).
- ❑ Version for vehicles with an automatic climate control system. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ Removing and Installing. Refer to ⇒ f7.2.5 or Air Distribution on Front A/C Display Control Head 4E777, Removing and Installing", page 343 .

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Note

- *The windshield, door window and rear window may fog up in recirculating air mode if the A/C system is switched off, for example (the air moisture in the vehicle interior increases and then condenses on the vehicle windows. The A/C system does not dehumidify the air).*
- *To defog the vehicle windows as quickly as possible, only restricted recirculating air mode is possible if the "defrost mode" function is activated via the Defrost Button -E782-. The Climatronic Control Module -J255- switches to fresh air mode and the A/C system operation is ac-*

tivated if possible (the A/C compressor is activated). The illumination of the indicator lamp in the Defrost Button -E782- indicates that the A/C system is switched on. If operating the A/C system is not desired in the "air to windshield" setting, it can be switched off again by pressing the A/C button. Refer to the ⇒ Owner's Manual.

- *The Front A/C Display Control Head 4 -E777- exchanges information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The Climatronic Control Module -J255- activates the various A/C system components according to the received requests.*
- *Check the activation function using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the Vehicle Electrical System Control Module -J519-.*
- *Description of the function. Refer to the ⇒ Owner's Manual.*
- *The "automatic recirculating air mode" function is activated when the Air Quality Sensor - G238- (assembled together with the Humidity Sensor in Fresh Air Intake Duct -G657- in one component) detects polluted surrounding air and automatic recirculating air mode is switched on via the Multimedia System Control Head -E380-. The selected or changed functions are shown in the instrument cluster center display. Refer to the ⇒ Owner's Manual.*
- *The "automatic recirculating air mode" function is switched off when the "defrost mode" function is selected via the Defrost Button -E782-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function. For additional information, refer to the ⇒ Owner's Manual.*

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5 - Defrost Button -E782-

- ❑ Illuminated LED indicates the "defrost mode" function is selected.
- ❑ The "recirculating air mode" function is canceled when selecting the "defrost mode" function (air to the windshield).
- ❑ Removing and Installing. Refer to ⇒ A7.2.8 ir and Recirculating Air Mode ButtonE781/Defrost ButtonE782, Removing and Installing", page 351 .

Note

- *The Climatronic Control Module -J255- receives a signal from the Defrost Button -E782-*

when the “defrost mode button” is pressed. The Climatronic Control Module -J255- then switches the A/C system to fresh air mode if it is in recirculating air mode.

- *The Defrost Button -E782- exchanges information with the Climatronic Control Module -J255- via a “LIN Bus” data wire. The Climatronic Control Module -J255- activates the various A/C system components according to the received requests.*
- *Check the activation function using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function for the Vehicle Electrical System Control Module -J519-.*
- *For more information and description of the function, refer to the ⇒ Owner's Manual.*

6 - Rear Window Defogger Button -E230-

- ❑ Illuminated LEDs indicate the “Rear window defogger on” function is selected.
- ❑ Version for vehicles with a manual climate control system. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ The rear window defogger can stay switched on by pressing and holding the button
- ❑ Removing and Installing. Refer to ⇒ R7.2.7 ear Window Defogger ButtonE230, Removing and Installing”, page 350 .

Note

- *The Rear Window Defogger Button -E230- sends a signal to the Climatronic Control Module -J255- when the button is pressed. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *The Climatronic Control Module -J255- then sends the information that the Rear Window Defogger Button -E230- was pressed to the Vehicle Electrical System Control Module -J519- via the data Bus. The Vehicle Electrical System Control Module -J519- then switches the activation of the Rear Window Defogger -Z1- on or off (directly or via the Rear Window Defogger Relay -J9-, depending on equipment. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations). The Climatronic Control Module -J255- switches the indicator lamp in the Rear Window Defogger Button -E230- on or off.*
- *Check the activation function using the ⇒ Vehicle diagnostic tester in the “Guided Fault*

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Finding" function for the Vehicle Electrical System Control Module -J519-.

- *Description of the function. Refer to the ⇒ Owner's Manual.*
- *The Rear Window Defogger -Z1- is activated by the Vehicle Electrical System Control Module -J519- (via the Rear Window Defogger Relay -J9-) only when the engine is running. If the engine is not running, there is no activation or response from the Vehicle Electrical System Control Module -J519-. The indicator lamp in the button does not illuminate or goes out again shortly after pressing it. Refer to the ⇒ Owner's Manual and use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *The Rear Window Defogger -Z1- is switched off automatically by the Vehicle Electrical System Control Module -J519- after the operating time stored in the Vehicle Electrical System Control Module -J519- (approximately 10 minutes) has elapsed when the exterior temperature is greater than 0 °C (32 °F), for example. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function and refer to the ⇒ Owner's Manual.*
- *The Rear Window Defogger -Z1- stays switched on with outside temperatures less than 0 °C (32 °F) until the ignition is switched off (it can be switched on and off manually at any time). If the temperature becomes greater than 0 °C (32 °F) during a driving period, the Rear Window Defogger -Z1- is switched off after the operating time stored in the Vehicle Electrical System Control Module -J519- has elapsed (approximately 10 minutes). Refer to the ⇒ Owner's Manual.*
- *If the rear window defogger button is pressed for a longer period of time when turning it on, the rear window defogger remains switched on until the button is pressed again or the ignition is switched off. Refer to the ⇒ Owner's Manual.*
- *If the Vehicle Electrical System Control Module -J519- measured voltage at terminal "30" falls below a value stored in the Vehicle Electrical System Control Module -J519- (or in*

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the Climatronic Control Module -J255-), the output is reduced or the rear window defogger switched off completely to reduce the load on the Generator -C-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

- *If the activation of the Rear Window Defogger -Z1- must be switched off briefly due to low voltage from the Vehicle Electrical System Control Module -J519-, the indicator lamp in the rear window defogger button remains switched on. However, if the deactivation lasts longer, the Vehicle Electrical System Control Module -J519- switches off the request to activate the indicator lamp in the button and the indicator lamp goes out.*
- *For vehicles with the Start/Stop System, the rear window defogger may be switched off to protect the Battery -A- when the Stop function is active. The setting for the Rear Window Defogger -Z1- activation remains stored. The rear window defogger is switched on again as soon as the engine is restarted via the Start function. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Vehicle Electrical System Control Module -J519-).*
- *The "Read measured values" function of the Guided Fault Finding for the Vehicle Electrical System Control Module -J519- (the Climatronic Control Module -J255-) shows that the rear window defogger is switched on or why there is no activation even though there is a request. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *Description of the activation function test for the rear window defogger using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the Vehicle Electrical System Control Module -J519-.*

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7 - Climatronic Control Module -J255-

- ❑ Removing and Installing. Refer to ⇒ C7.2.1 limatronic Control ModuleJ255, Removing and Installing", page 332 .
- ❑ Version for vehicles with an automatic climate control system. Refer to the ⇒ Electronic Parts Catalog (ETKA).
- ❑ The Climatronic Control Module -J255- receives information from the various controls (control heads, regulators and buttons) via data wires or direct wire connections. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

- ❑ The A/C system regulation is controlled via the selected presets on the controls.
- ❑ Certain presets on the controls are transmitted by the Climatronic Control Module -J255- to secondary control modules via the data Bus (for example, the activation of the rear window defogger, the seat heating, etc. to the Vehicle Electrical System Control Module -J519-). The Vehicle Electrical System Control Module -J519- reports the change request back to the Climatronic Control Module -J255- and it then activates the indicator lamps in the controls. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Note

- ♦ *There are different versions of the Climatronic Control Module -J255- (for example, for vehicles with a manual or an automatic climate control system, etc.). Ensure the correct version and allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- ♦ *To check the activation function, use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.*
- ♦ *Function description of the various controls and buttons. Refer to the ⇒ Owner's Manual.*
- ♦ *For vehicles with an auxiliary heater, it is activated depending on the selected temperature, coolant temperature, etc. if additional heating output is necessary to reach the desired temperature. Refer to ⇒ H2.3 eater Operation with Diesel Engine (Not for North American Market)”, page 6 .*
- ♦ *Installed on the left in RHD vehicles.*

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8 - Front A/C Display Control Head 5 -E778-

- ❑ Right regulator and button for seat heating (and neck heating)
- ❑ Installed in the right instrument panel vent
- ❑ Removing and Installing. Refer to ⇒ K7.2.6 nob for Seat Heating (and Neck Heating) on Front A/C Display Control Head 5E778, Removing and Installing”, page 345 .
- ❑ Illuminated LEDs indicate the selected setting for the seat heating (and/or neck heating)
- ❑ The selected setting can be set back one level after a pre-set time.
- ❑ Check the activation function using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-.
- ❑ For more information and description of the function, refer to ⇒ H2.4 eating”, page 11 and the ⇒ Owner's Manual.

Note

- ♦ *The Front A/C Display Control Head 5 -E778- exchanges information with the Climatronic Control Module -J255- via a “LIN Bus” data wire. The Climatronic Control Module -J255- activates the seat heating*

(and/or neck heating) according to the received requests.

- *Only a place holder (a cover) that has no function is installed on vehicles without the optional “seat heating” or “seat and neck heating” equipment instead of the Front A/C Display Control Head 1 -E774-.*

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7.2 A/C Display Control Heads, Removing and Installing

⇒ C7.2.1 limatronic Control ModuleJ255, Removing and Installing", page 332

⇒ K7.2.2 nob for Seat Heating (and Neck Heating) on Front A/C Display Control Head 1E774, Removing and Installing", page 333

⇒ K7.2.3 nob for Fresh Air Blower Speed (and A/C System Operation) on Front A/C Display Control Head 2E775, Removing and Installing", page 336

⇒ K7.2.4 nob for Temperature (and A/C System Operation) on Front A/C Display Control Head 3E776, Removing and Installing", page 339

⇒ f7.2.5 or Air Distribution on Front A/C Display Control Head 4E777, Removing and Installing", page 343

⇒ K7.2.6 nob for Seat Heating (and Neck Heating) on Front A/C Display Control Head 5E778, Removing and Installing", page 345

⇒ R7.2.7 ear Window Defogger ButtonE230, Removing and Installing", page 350

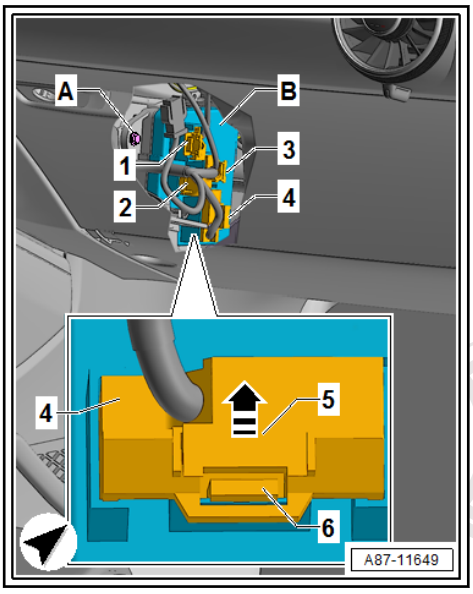
⇒ A7.2.8 ir and Recirculating Air Mode ButtonE781/Defrost ButtonE782, Removing and Installing", page 351

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7.2.1 Climatronic Control Module -J255-, Removing and Installing

Note

There are different versions of the Climatronic Control Module -J255- -B- and various display control heads for vehicles with a manual or an automatic climate control system. Refer to ⇒ L7.1 ocation Overview - Display Control Head", page 311 . Make sure the various display control heads (Front A/C Display Control Head 2 -E775- through Front A/C Display Control Head 4 -E777-) are correctly allocated to each other and to the Climatronic Control Module -J255- -B-. Interchanging components for vehicles with a manual or with an automatic climate control system is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).



– If the Climatronic Control Module -J255- -B- should be replaced, select the "Replace control module" function in Guided Fault Finding before removing. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

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Removing

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

LHD vehicle

– Remove the footwell vent on the front passenger side. Refer to ⇒ P6.2.7 assenger Side Footwell Vent, Removing and Installing", page 294 .

RHD vehicles

– Remove the driver side footwell vent. Refer to ⇒ S6.2.6 ide Footwell Vent, Removing and Installing", page 293 .

Continuation for All Vehicles

– Release and disconnect the connectors -1, 2 and 3-.

– Disconnect the connectors -4- by sliding the retainer -5- upward in the direction of -arrow- and pressing the release -6- inward.

– Remove the screws -A- (tightening specification: 4 Nm).

Installing

Install in the reverse order of removal while noting the following:

Note

There are different versions of the Climatronic Control Module -J255- (for example, for vehicles with a manual or an automatic climate control system, etc.). Ensure the correct version and allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).

– Check the DTC memory (of the Climatronic Control Module -J255-), erase any displayed entries, and perform the “basic setting” using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

– Check the heating and A/C system function.

7.2.2 Left Knob for Seat Heating (and Neck Heating) on Front A/C Display Control Head 1 -E774-, Removing and Installing

Note

- *Front seat heating is optional equipment on the Audi TT. For more information, refer to ⇒ Body Interior; Rep. Gr. 74; Front Seat Covers and Cushions. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-) and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *Neck heating is only available as optional equipment on the Audi TT Roadster. For more information about neck heating, refer to ⇒ Body Interior; Rep. Gr. 74; Front Seat Covers and Cushions. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-) and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*

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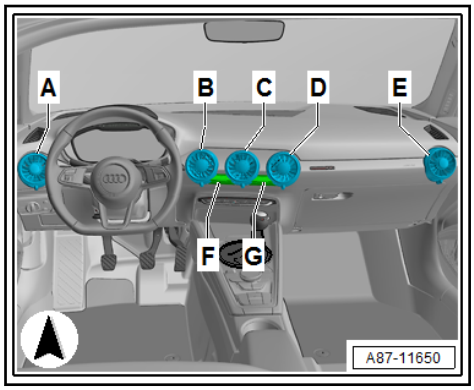
- *There are different versions of the Climatronic Control Module -J255- and various display control heads for vehicles with a manual or an automatic climate control system. Make sure the various display control heads (Front A/C Display Control Head 1 -E774- through Front A/C Display Control Head 5 -E778-) are correctly allocated to each other and to the Climatronic Control Module -J255-. Interchanging components for vehicles with a manual or with an automatic climate control system is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Only a place holder (a cover) that has no function is installed on vehicles without the optional “seat heating” or “seat and neck heating” equipment instead of the Front A/C Display Control Head 1 -E774-. A knob is installed on vehicles with the optional “seat heating” equipment. A rotary push button is installed on vehicles with the optional “seat and neck heating” equipment.*

Removing

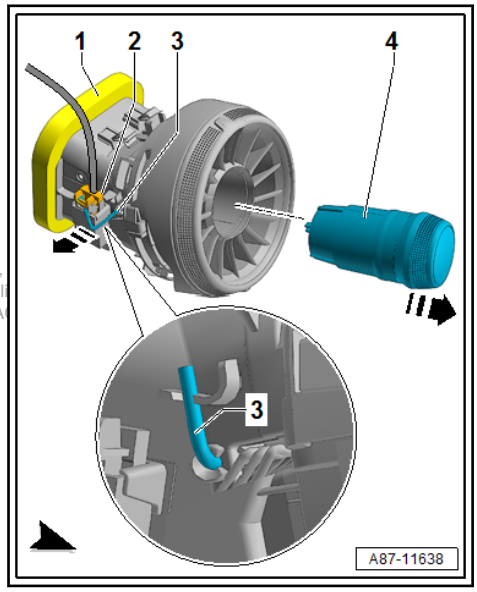
– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

– Remove the left instrument panel vent -A-. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.



– Release and disconnect the connector -2-.



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– Release the pin -3- and remove it in the direction of -arrow-.
– Remove the Front A/C Display Control Head 1 -E774- -4- from the removed instrument panel vent -arrow-.

Installing

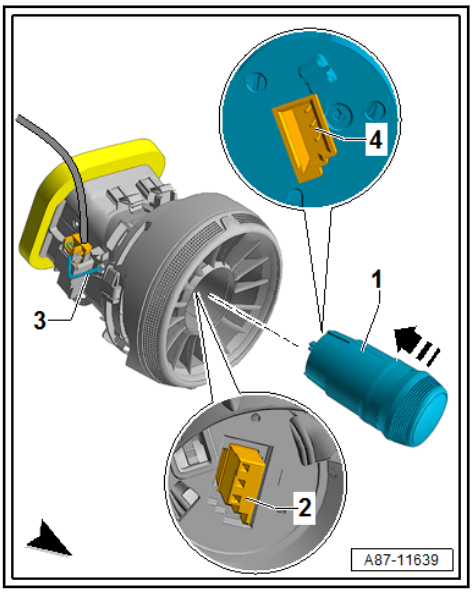
Install in the reverse order of removal while noting the following:

Note

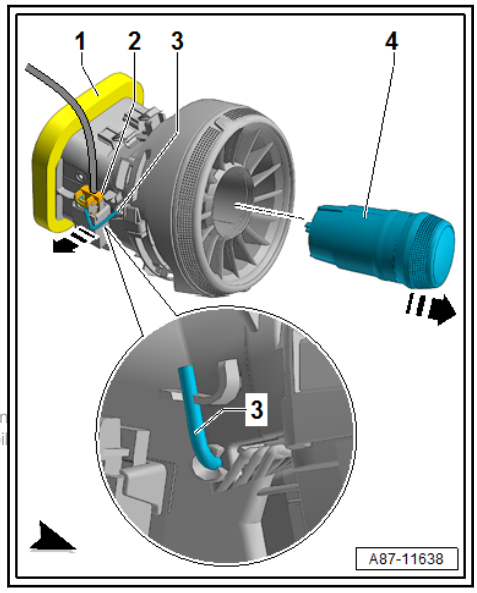
- *The control heads for the left and right side exchange information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The left and right knobs emit different signals. Therefore, a knob may only be installed on its designated side. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *There are different versions of the Front A/C Display Control Head 1 -E774- (for example, for the left and right seat, for vehicles with or without neck heating, etc.). Ensure the correct version and allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The various display control knobs and instrument panel vents are coded to each other through groove and tongue connections, therefore pay attention to the correct allocation of these components to each other. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Different data signals from the Climatronic Control Module -J255- control head sent on the LIN Bus data wire are used to allocate the signal for the seat heating activation (and/or neck heating) from the Front A/C Display Control Head 1 -E774- for the left seat and the signal from the Front A/C Display Control Head 5 -E778- for the right seat. For problems with seat heating activation (and/or neck heating) on identical or interchanged control heads, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module Climatronic Control Module -J255-). Refer to the ⇒ Electronic Parts Catalog (ETKA) and ⇒ Wiring diagrams, Troubleshooting & Component locations.*

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– There are different versions of the instrument panel vents depending on the component location. Pay attention to the correct arrangement. Refer to the ⇒ Electronic Parts Catalog (ETKA).
– Check the foam seal -1- on the instrument panel vent for damage and proper adhesion.
– Check the connectors in the instrument panel vent -2- and on the display control knob -4- for damage and contamination.



– Insert the display control knob -1- into the instrument panel vent on the proper side in the direction of -arrow-. While doing so, pay attention to the connectors -2 and 4-.
– Slide the display control knob -1- all the way into the instrument panel vent and secure it with the pin -3-.
– Secure the pin -3-.
– Connect the connector -2-.



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– Install the instrument panel vent. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
– Check the DTC memory (of the Climatronic Control Module -J255-) and delete any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
– Then check the function of the seat heating (and the neck heating).

7.2.3 Preset Knob for Fresh Air Blower Speed (and A/C System Operation)

on Front A/C Display Control Head 2 -E775-, Removing and Installing

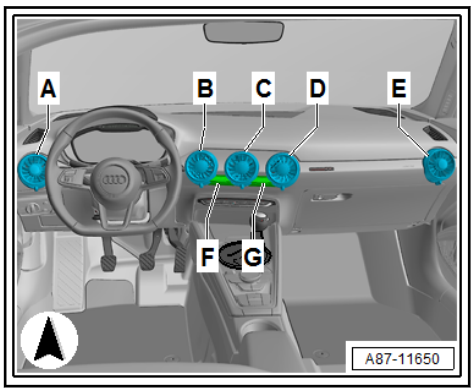
Note

- *There are different versions and functions depending on the A/C system version.*
- *The layout of the Front A/C Display Control Head 2 -E775- and Front A/C Display Control Head 4 -E777- may be different on left-hand or RHD vehicles. Refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 , Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and the ⇒ Owner's Manual.*
- *There are different versions of the Climatronic Control Module -J255- and various display control heads for vehicles with a manual or an automatic climate control system. Make sure the various display control heads (Front A/C Display Control Head 2 -E775- through Front A/C Display Control Head 4 -E777-) are correctly allocated to each other and to the Climatronic Control Module -J255-. Interchanging components for vehicles with a manual or with an automatic climate control system is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *For vehicles with a "Convenience" A/C system version (with an automatic climate control system), the Front A/C Display Control Head 2 -E775- is installed with a knob, an A/C button and a display unit for the selected fresh air blower speed. Refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 and the ⇒ Owner's Manual.*
- *For vehicles with a "Basic" A/C system version (with a manual climate control system), the Front A/C Display Control Head 2 -E775- is installed with a knob for the temperature setting with an OFF button. The selected fresh air blower speed can be identified by the position of the knob. Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and the ⇒ Owner's Manual.*

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Removing

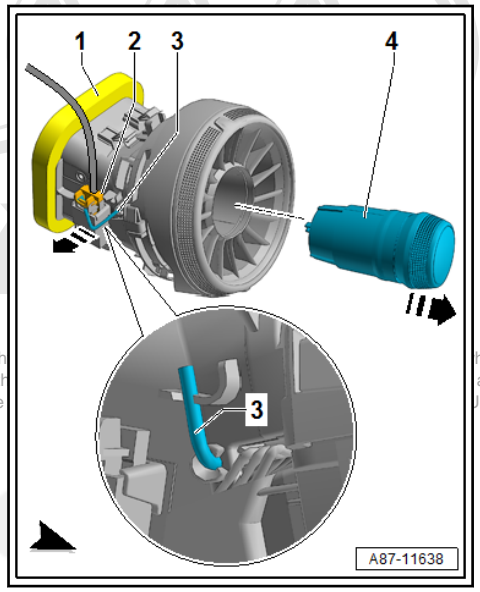
– Remove the Fresh Air and Recirculating Air Mode Button -E781-/Defrost Button -E782- -F-. Refer to ⇒ A7.2.8 ir and Recirculating Air Mode ButtonE781/Defrost ButtonE782, Removing and Installing", page 351 .



– Remove the left center instrument panel vent -B-. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and

⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

– Release and disconnect the connector -2-.



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– Release the pin -3- and remove it in the direction of -arrow-.
– Remove the Front A/C Display Control Head 2 -E775- -4- from the removed instrument panel vent in the direction of -arrow-.

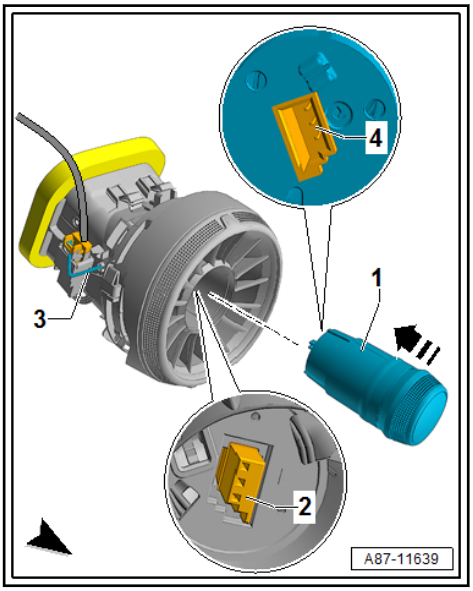
Installing

Install in the reverse order of removal while noting the following:

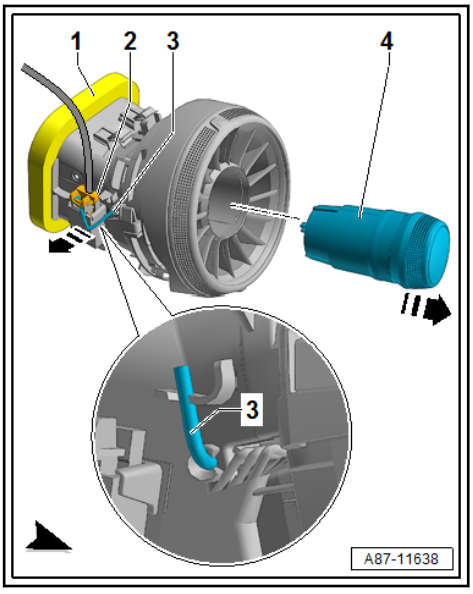
Note

- *The Front A/C Display Control Head 2 -E775- exchanges information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The signal emitted by the Front A/C Display Control Head 2 -E775- is different depending on the A/C system version. A Front A/C Display Control Head 2 -E775- may therefore only be installed on a vehicle with an A/C system to which it was designated. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *There are different versions of the Front A/C Display Control Head 2 -E775-. Ensure the correct version and allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The various display control knobs and instrument panel vents are coded to each other through groove and tongue connections, therefore pay attention to the correct allocation of these components to each other. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

– Check the foam seal -1- on the instrument panel vent for damage and proper adhesion.
– Check the connectors in the instrument panel vent -2- and on the display control knob -4- for damage and contamination.



– Insert the display control knob -1- into the instrument panel vent on the proper side in the direction of -arrow-. While doing so, pay attention to the connectors -2 and 4-.
– Slide the display control knob -1- all the way into the instrument panel vent and secure it with the pin -3-.
– Secure the pin -3-.
– Connect the connector -2-.



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– Install the instrument panel vent. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
– Check the DTC memory (of the Climatronic Control Module -J255-) and delete any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
– Check the heating and A/C system function.

7.2.4 Preset Knob for Temperature (and A/C System Operation) on Front A/C Dis-

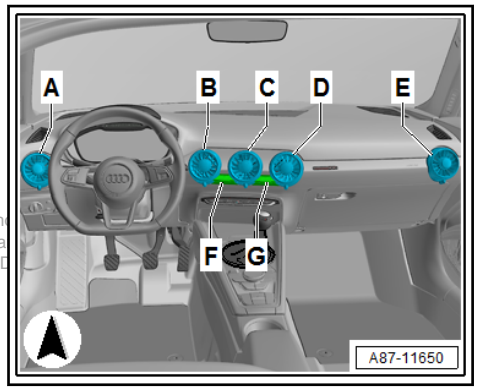
play Control Head 3 -E776-, Removing and Installing

Note

- *There are different versions and functions depending on the A/C system version*
- *There are different versions of the Climatronic Control Module -J255- and various display control heads for vehicles with a manual or an automatic climate control system. Make sure the various display control heads (Front A/C Display Control Head 2 -E775- through Front A/C Display Control Head 4 -E777-) are correctly allocated to each other and to the Climatronic Control Module Climatronic Control Module -J255-. Interchanging components for vehicles with a manual or with an automatic climate control system is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *For vehicles with a "Convenience" A/C system version (with an automatic climate control system), the Front A/C Display Control Head 3 -E776- is installed with an Auto button and a display unit for the selected temperature. Refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 and the ⇒ Owner's Manual.*
- *For vehicles with a "Basic" A/C system version (with a manual climate control system), a Front A/C Display Control Head 3 -E776-) is installed with an A/C button. The selected temperature can be identified by the position of the knob. Refer to ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and the ⇒ Owner's Manual.*

Removing

– Remove the Rear Window Defogger Button -E230- -G- and Fresh Air and Recirculating Air Mode Button -E781-/Defrost Button -E782- -F-. Refer to ⇒ R7.2.7 ear Window Defogger ButtonE230, Removing and Installing", page 350 and ⇒ A7.2.8 ir and Recirculating Air Mode ButtonE781/Defrost ButtonE782, Removing and Installing", page 351 .



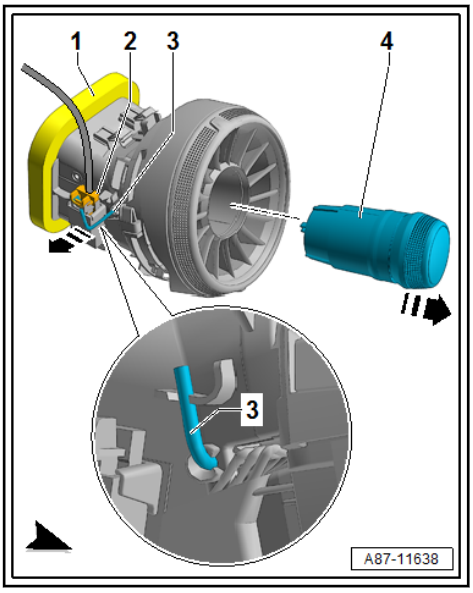
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– Remove the left center instrument panel vent -B- and the right center instrument panel vent -D-. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

– Remove the center instrument panel vent -C-. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and

⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

– Release and disconnect the connector -2-.



– Release the pin -3- and remove it in the direction of -arrow-.

– Remove the Front A/C Display Control Head 3 -E776- -4- from the removed instrument panel vent in the direction of -arrow-.

Installing

Install in the reverse order of removal while noting the following:

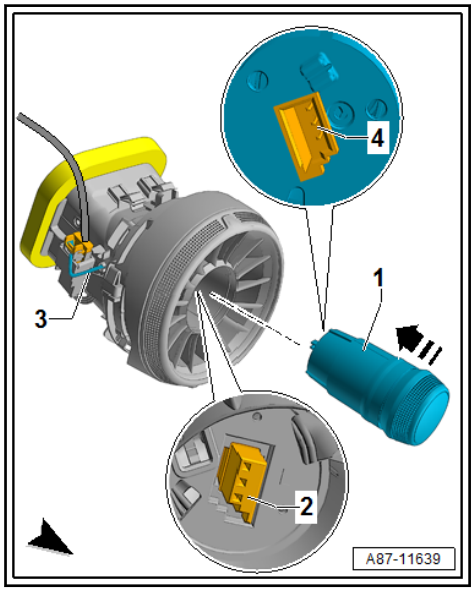
Note

- *The Front A/C Display Control Head 3 -E776- exchanges information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The signal emitted by the Front A/C Display Control Head 3 -E776- is different depending on the A/C system version. A Front A/C Display Control Head 3 -E776- may therefore only be installed on a vehicle with an A/C system to which it was designated. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *There are different versions of the Front A/C Display Control Head 3 -E776-. Ensure the correct version and allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The various display control knobs and instrument panel vents are coded to each other through groove and tongue connections, therefore pay attention to the correct allocation of these components to each other. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *There are different versions of the instrument panel vents depending on the component location. Pay attention to the correct arrangement. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

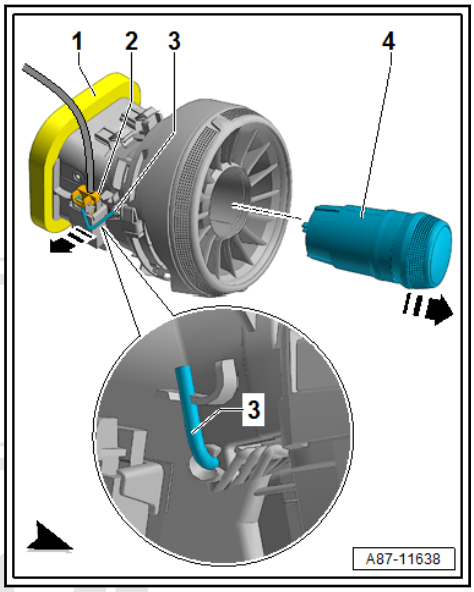
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– Check the foam seal -1- on the instrument panel vent for damage and proper adhesion.

– Check the connectors in the instrument panel vent -2- and on the display control knob -4- for damage and contamination.



– Insert the display control knob -1- into the instrument panel vent on the proper side in the direction of -arrow-. While doing so, pay attention to the connectors -2 and 4-.
– Slide the display control knob -1- all the way into the instrument panel vent and secure it with the pin -3-.
– Secure the pin -3-.
– Connect the connector -2-.



– Install the instrument panel vent. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
– Check the DTC memory (of the Climatronic Control Module -J255-) and delete any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
– Check the heating and A/C system function.

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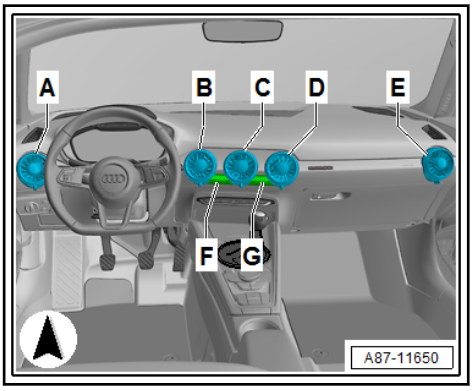
7.2.5 Knob for Air Distribution on Front A/C Display Control Head 4 -E777-, Removing and Installing

Note

- *There are different versions and functions depending on the A/C system version*
- *The layout of the Front A/C Display Control Head 2 -E775- and Front A/C Display Control Head 4 -E777- may be different on left-hand or RHD vehicles. Refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 , ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and the ⇒ Owner's Manual.*
- *For vehicles with a "Convenience" A/C system version (with an automatic climate control system), a Front A/C Display Control Head 4 -E777- is installed with a button for manual recirculating air mode.*
- *For vehicles with a "Basic" A/C system version (with a manual climate control system), a Front A/C Display Control Head 4 -E777- is installed without a button for recirculating air mode. The "defrost mode" function is also activated via this knob.*

Removing

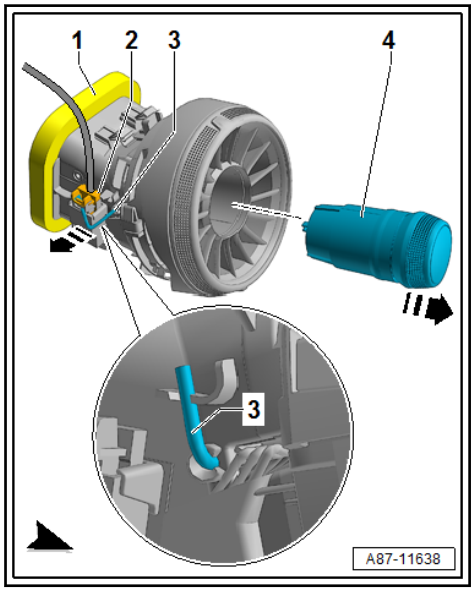
– Remove the Rear Window Defogger Button -E230- -G-. Refer to ⇒ R7.2.7 ear Window Defogger ButtonE230, Removing and Installing", page 350 .



– Remove the right center instrument panel vent -D-. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

– Release and disconnect the connector -2-.

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– Release the pin -3- and remove it in the direction of -arrow-.
– Remove the Front A/C Display Control Head 4 -E777- -4- from the removed instrument panel vent in the direction of -arrow-.

Installing

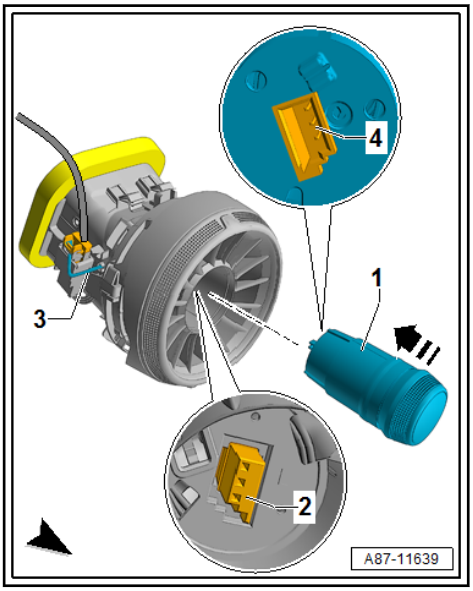
Install in the reverse order of removal while noting the following:

Note

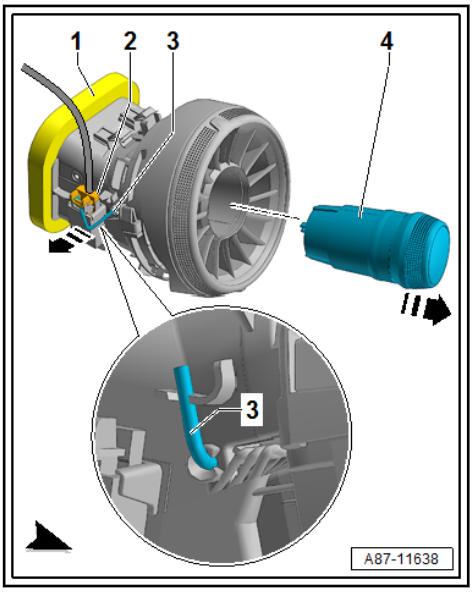
- *The Front A/C Display Control Head 4 -E777- exchanges information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The signal emitted by the Front A/C Display Control Head 4 -E777- is different depending on the A/C system version. A knob (a Front A/C Display Control Head 4 -E777-) may therefore only be installed on a vehicle with an A/C system to which it was designated. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *There are different versions of the Front A/C Display Control Head 4 -E777-. Ensure the correct version and allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The various display control knobs and instrument panel vents are coded to each other through groove and tongue connections, therefore pay attention to the correct allocation of these components to each other. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *There are different versions of the instrument panel vents depending on the component location. Pay attention to the correct arrangement. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

– Check the foam seal -1- on the instrument panel vent for damage and proper adhesion.
– Check the connectors in the instrument panel vent -2- and on the display control knob -4- for damage and contamination.

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– Insert the display control knob -1- into the instrument panel vent on the proper side in the direction of -arrow-. While doing so, pay attention to the connectors -2 and 4-.
– Slide the display control knob -1- all the way into the instrument panel vent and secure it with the pin -3-.
– Secure the pin -3-.
– Connect the connector -2-.



– Install the instrument panel vent. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
– Check the DTC memory (of the Climatronic Control Module -J255-) and delete any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
– Check the heating and A/C system function.

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7.2.6 Right Knob for Seat Heating (and Neck Heating) on Front A/C Display Control

Head 5 -E778-, Removing and Installing

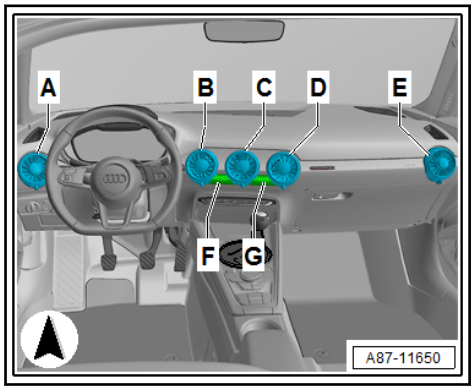
Note

- *Front seat heating is optional equipment on the Audi TT. For more information, refer to ⇒ Body Interior; Rep. Gr. 74; Front Seat Covers and Cushions. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-) and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *Neck heating is only available as optional equipment on the Audi TT Roadster. For more information about neck heating, refer to ⇒ Body Interior; Rep. Gr. 74; Front Seat Covers and Cushions. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" (for the Climatronic Control Module -J255- and the Vehicle Electrical System Control Module -J519-) and refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *There are different versions of the Climatronic Control Module -J255- and various display control heads for vehicles with a manual or an automatic climate control system. Make sure the various display control heads (Front A/C Display Control Head 2 -E775- through Front A/C Display Control Head 4 -E777-) are correctly allocated to each other and to the Climatronic Control Module -J255-. Interchanging components for vehicles with a manual or with an automatic climate control system is not permitted. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Only a place holder (a cover) that has no function is installed on vehicles without the optional "seat heating" or "seat and neck heating" equipment instead of the Front A/C Display Control Head 5 -E778-. A knob is installed on vehicles with the optional "seat heating" equipment. A rotary push button is installed on vehicles with the optional "seat and neck heating" equipment.*

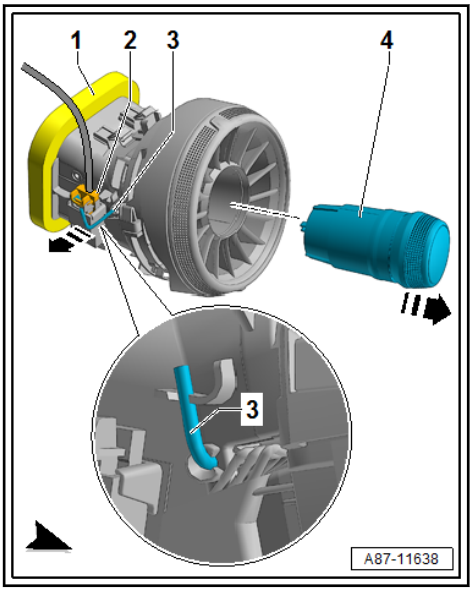
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Removing

– Remove the right instrument panel vent -E-. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.



– Release and disconnect the connector -2-.



– Release the pin -3- and remove it in the direction of -arrow-.
– Remove the Front A/C Display Control Head 5 -E778- -4- from the removed instrument panel vent in the direction of -arrow-.

Installing

Install in the reverse order of removal while noting the following:

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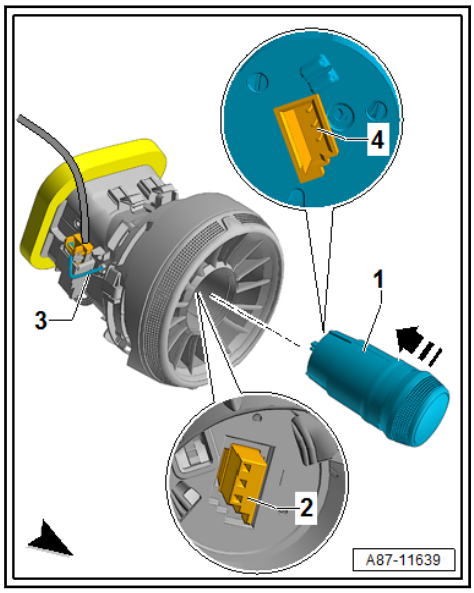
Note

- *The control heads for the left and right side exchange information with the Climatronic Control Module -J255- via a "LIN Bus" data wire. The left and right knobs emit different signals. Therefore, a knob may only be installed on its designated side. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *There are different versions of the Front A/C Display Control Head 5 -E778- (for example, for the left and right seat, for vehicles with or without neck heating, etc.). Ensure the correct version and allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *Different data signals from the Climatronic Control Module -J255- control head sent on the LIN Bus data wire are used to allocate the signal for the seat heating activation (and/or neck heating) from the Front A/C Display Control Head 1 -E774- for the left seat and the signal from the Front A/C Display Control Head 5 -E778- for the right seat. For problems with seat heating activation (and/or neck heating) on identical or interchanged control heads, use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function (for the Climatronic Control Module -J255-). Refer to the ⇒ Electronic Parts Catalog (ETKA) and ⇒ Wiring diagrams, Troubleshooting & Component locations.*
- *The various display control knobs and instrument panel vents are coded to each other through groove and tongue connections, therefore pay attention to the correct allocation of these components to each other. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *There are different versions of the instrument panel vents depending on the component location. Pay attention to the correct arrangement. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

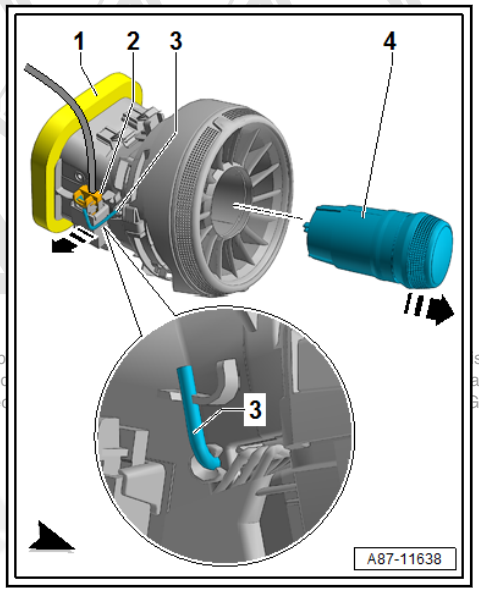
– Check the foam seal -1- on the instrument panel vent for damage and proper adhesion.

– Check the connectors in the instrument panel vent -2- and on the display control knob -4- for damage and contamination.

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– Insert the display control knob -1- into the instrument panel vent on the proper side in the direction of -arrow-. While doing so, pay attention to the connectors -2 and 4-.
– Slide the display control knob -1- all the way into the instrument panel vent and secure it with the pin -3-.
– Secure the pin -3-.
– Connect the connector -2-.



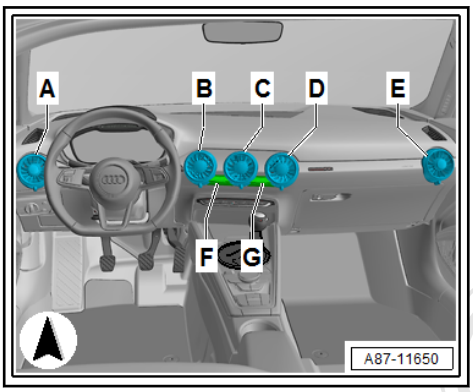
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– Install the instrument panel vent. Refer to ⇒ P6.2.3 anel Vent, Removing and Installing", page 287 and ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.
– Check the DTC memory (of the Climatronic Control Module -J255-) and delete any displayed entries using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.
– Then check the function of the seat heating (and the neck heating).

7.2.7 Rear Window Defogger Button -E230-, Removing and Installing

Note

The layout of the Rear Window Defogger Button -E230- -G- and Fresh Air and Recirculating Air Mode Button -E781-/Defrost Button -E782- -F- may be different on left-hand or RHD vehicles. Refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 , ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and the ⇒ Owner's Manual.

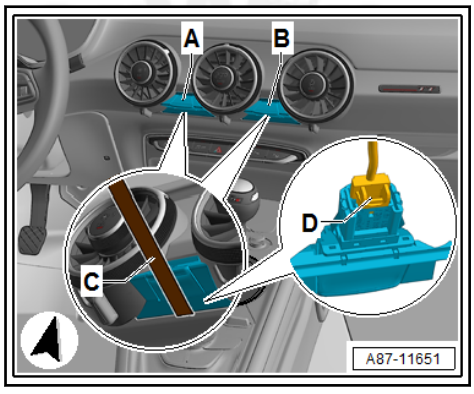


The Climatronic Control Module -J255- receives a signal from the Rear Window Defogger Button -E230- -G- when the button is pressed. The Climatronic Control Module -J255- then sends the information that the Rear Window Defogger Button -E230- was pressed to the Vehicle Electrical System Control Module -J519- via the data Bus. The Vehicle Electrical System Control Module -J519- then switches the rear window defogger activation on or off.

Removing

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– Pull the Rear Window Defogger Button -E230- -B- out of the mount using the Backrest Panel Tool -3370- -C-, for example.



– Release and remove the connector -D-.

Installing

Install in the reverse order of removal while noting the following:

– Make sure the Rear Window Defogger Button -E230- -B- and Fresh Air and Recirculating Air Mode Button -E781-/Defrost Button -E782- -A- are arranged on their proper side.

– Check the DTC memory (of the Climatronic Control Module -J255-) and delete any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
– Then check the function of the Rear Window Defogger -Z1-.

7.2.8 Fresh Air and Recirculating Air Mode Button -E781-/Defrost Button -E782-, Removing and Installing

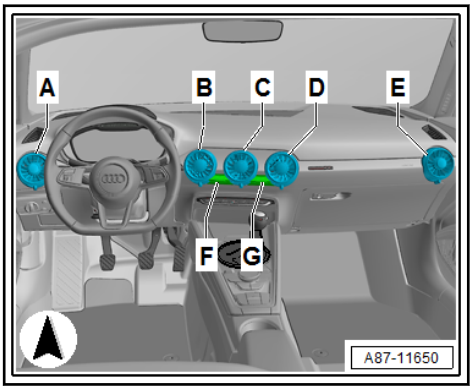
Fresh Air and Recirculating Air Mode Button -E781- (manual climate control system)

Defrost Button -E782- (automatic climate control system)

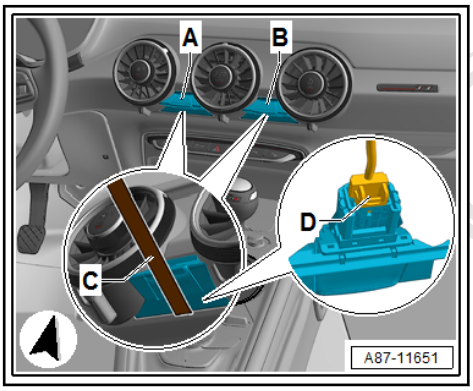
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Note

- *Different buttons are installed in this location depending on the vehicle equipment.*
- *The layout of the Rear Window Defogger Button -E230- -G- and Fresh Air and Recirculating Air Mode Button -E781-/ Defrost Button -E782- -F- may be different on left-hand or RHD vehicles. Refer to ⇒ L7.1.2 ocation Overview - Display Control Heads, Vehicles with Automatic Climate Control System", page 320 , ⇒ L7.1.1 ocation Overview - Display Control Heads, Vehicles with Manual Climate Control System", page 311 and the ⇒ Owner's Manual.*



For a vehicle with a "Convenience" A/C system version (with an automatic climate control system), a Defrost Button -E782- -A- is installed.



- *For a vehicle with a "Basic" A/C system version (with a manual climate control system), a Fresh Air and Recirculating Air Mode Button -E781- -A- is installed.*
- *The Climatronic Control Module -J255- receives a signal from the Fresh Air and Recirculating Air Mode Button -E781- -A- when the button is pressed. The Climatronic Control Module -J255- then switches the A/C system to recirculating or fresh air mode.*
- *The Climatronic Control Module -J255- receives a signal from the Defrost Button -E782- -A- when the button is pressed. The Climatronic Control Module -J255- then switches the A/C system to air to windshield and switches on the A/C compressor activation. Recirculating air mode is not possible when defrost mode is active.*

Removing

– Pull the Fresh Air and Recirculating Air Mode Button -E781-/ Defrost Button -E782- -A- out of the mount using the Backrest Panel Tool -3370- -C-, for example.

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– Release and remove the connector -D-.

Installing

Install in the reverse order of removal while noting the following:

– Make sure the Fresh Air and Recirculating Air Mode Button -E781- and Defrost Button -E782- -A- are allocated correctly.

– Make sure the Rear Window Defogger Button -E230- -B- and Fresh Air and Recirculating Air Mode Button -E781-/Defrost Button -E782- -A- are arranged on their proper side.

– Check the DTC memory (of the Climatronic Control Module -J255-) and delete any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

– Check the heating and A/C system function.

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8 Coolant Circuit

⇒ A8.1 fter-Run Coolant PumpV51, Removing and Installing", page 354

⇒ C8.2 oolant Shut-Off ValveN82, Removing and Installing", page 354

8.1 After-Run Coolant Pump -V51-, Removing and Installing

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Note

Depending on the engine version, the After-Run Coolant Pump -V51- is installed in the coolant circuit. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses) and ⇒ Wiring diagrams, Troubleshooting & Component locations.

Removing and Installing. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses or Coolant Pump/Thermostat).

8.2 Coolant Shut-Off Valve -N82-, Removing and Installing

Note

Depending on the engine version, the Coolant Shut-Off Valve -N82- is installed in the coolant circuit. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses) and ⇒ Wiring diagrams, Troubleshooting & Component locations.

Removing and Installing. Refer to ⇒ Rep. Gr. 19; Cooling System/Coolant (Connection Diagram for Coolant Hoses or Coolant Pump/Thermostat).

9 Additional Components for Control and Regulation

⇒ S9.1 unlight Photo SensorG107, Removing and Installing", page 355

⇒ O9.2 utside Air Temperature SensorG17, Removing and Installing", page 356

⇒ I9.3 nstrument Panel Temperature SensorG56, Removing and Installing", page 357

⇒ Q9.4 uality SensorG238 Function", page 358

⇒ A9.5 ir Quality SensorG238, Checking", page 362

⇒ S9.6 ensor in Fresh Air Intake DuctG657 Function", page 367

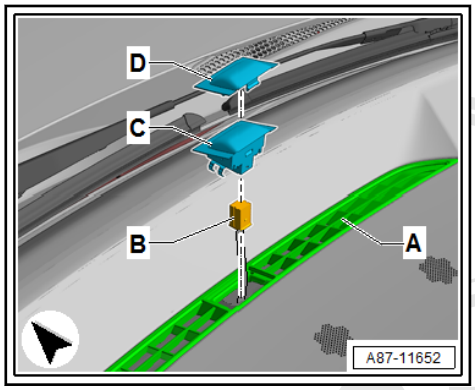
⇒ A9.7 ir Quality SensorG238/Humidity Sensor In Fresh Air Intake DuctG657, Removing and Installing", page 369

⇒ H9.8 umidity SensorG355, Removing and Installing", page 370

9.1 Sunlight Photo Sensor -G107-, Removing and Installing

Note

The Sunlight Photo Sensor -G107- -C- is only installed on the "Convenience" A/C system version (on an automatic climate control system).



- *A cover -D- is installed instead of the Sunlight Photo Sensor -G107- -C- on a vehicle with a "Basic" A/C system version (with a manual climate control system). Refer to the ⇒ Electronic Parts Catalog (ETKA) .*
- *Check the Sunlight Photo Sensor -G107- -C- using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the A/C system.*
- *There are different versions of the Sunlight Photo Sensor -G107- -C-. Therefore, ensure the correct allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA). Should a Sunlight Photo Sensor -G107- be installed that is not intended for this vehicle (it emits a different signal than the one intended in this Climatronic Control Module -J255- A/C control head), the Climatronic Control Module -J255- cannot evaluate the signal from the Sunlight Photo Sensor -G107- and the A/C system regulation is faulty. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function for the A/C system.*

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Removing

– Switch the ignition off.

– Carefully pry the Sunlight Photo Sensor -G107- -C- upward out of the defroster vent -A- using a small screwdriver, for example. Refer to ⇒ Body Interior; Rep. Gr. 70; Instrument Panel; Overview - Instrument Panel.

Note

Do not damage the cover surface of the Sunlight Photo Sensor -G107- -C- and the defroster vent -A-.

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– Disconnect the connector -B-.

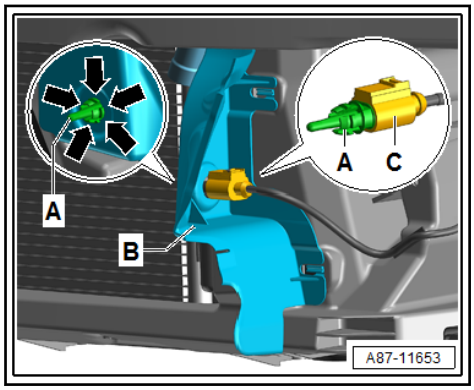
Installing

Install in the reverse order of removal while noting the following:

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

9.2 Outside Air Temperature Sensor - G17-, Removing and Installing

Removing



– Vehicles with auxiliary radiator, remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper; Bumper Cover, Removing and Installing.

– Remove the bumper cover end plate. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper; Overview - Bumper Cover.

– Carefully press the clips -arrows- together. While doing so, detach the Outside Air Temperature Sensor -G17- -A- from the air guide on the left side of the radiator -B-.

– Disconnect the connector -C-.

Installing

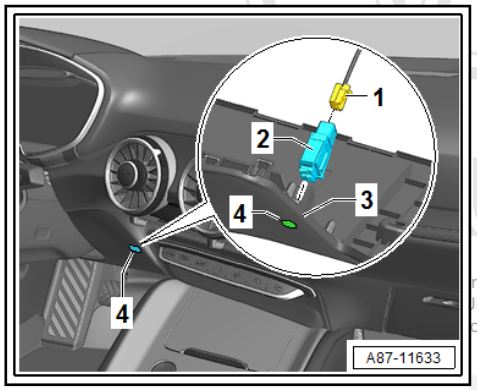
Install in the reverse order of removal while noting the following:

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

9.3 Instrument Panel Temperature Sensor -G56-, Removing and Installing

Note

The Instrument Panel Temperature Sensor -G56- -2- is only installed on vehicles with an automatic climate control system. The opening in the storage compartment (or in the knee bar) on the driver side is sealed off with a closure cap that has no electrical function on vehicles with a manual climate control system.



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- *The Instrument Panel Temperature Sensor -G56- -2- calculates three different measured values that cannot be checked with service equipment. From these measured values the Climatronic Control Module -J255- calculates the temperature in the vehicle interior. Depending on the ambient conditions, the three calculated measured values may deviate from each other and only begin to come closer together after a longer period of operation or remaining stationary. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *A dirty sensor head on the Instrument Panel Temperature Sensor -G56- -2- or a dirty or taped off opening in the storage compartment (or knee bar) -4- causes problems when regulating the A/C system. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*

Removing

WARNING

Risk of injury by the knee airbag.

- ***Before working in an area with pyrotechnic components, the person must "discharge static electricity". Pay attention to the safety precautions when working on the airbag. Refer to ⇒ Body Interior; Rep. Gr. 00; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components (Body Interior; Safety Precautions; Safety Precautions when Working on Pyrotechnic Components).***

– Switch the ignition off.

– Versions with ignition lock: remove the ignition key.

– Remove the driver side instrument panel cover (or knee airbag) -3-. Refer to ⇒ Body Interior; Rep. Gr. 68; Compart-

ments/Covers; Driver Side Instrument Panel Cover, Removing and Installing.

– Disconnect the connector -1-.
– Remove the Instrument Panel Temperature Sensor -G56- -2- from the mount in the storage compartment (or in the knee bar) -3-.

Installing

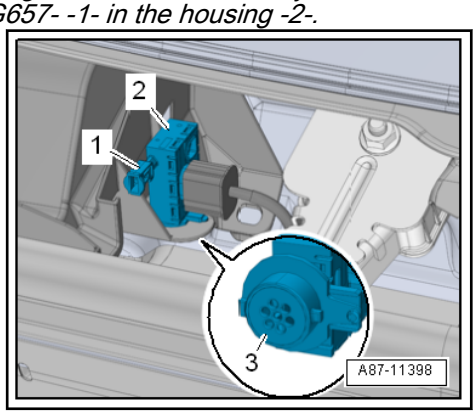
Install in reverse order of removal.

– Check the opening in the storage compartment (or knee bar) -4- and the sensor head for the Instrument Panel Temperature Sensor -G56- -2- for contamination.
– Install the remaining components.
– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.
– Check the heating and A/C system function.

9.4 Air Quality Sensor -G238- Function

Note

The Air Quality Sensor -G238- -3- is only installed on a “Convenience” A/C system version (on an automatic climate control system). It is integrated together with the Humidity Sensor In Fresh Air Intake Duct -G657- -1- in the housing -2-.



There are different versions of the Air Quality Sensor -G238- -3- and the Humidity Sensor in Fresh Air Intake Duct -G657- -1-. Pay attention to the correct allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).

- The Air Quality Sensor -G238- (and the Humidity Sensor in Fresh Air Intake Duct -G657-) uses a sensor to determine the NOx level (nitrogen oxide) and CO level (carbon monoxide) in the air flowing by and exchanges this information with the Climatronic Control Module -J255-.
- The measured values for the Air Quality Sensor -G238- (and the Humidity Sensor in Fresh Air Intake Duct -G657-) are evaluated by the Climatronic Control Module -J255-. Upon request, the Climatronic Control Module -J255- switches to recirculating air mode if no shut-off condition is present. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

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Note

- *Certain A/C system functions (such as the regulation of the "automatic recirculating air mode") can be switched on and off via the Multimedia System Control Head -E380-. These settings appear in the instrument cluster center display. Therefore, first check the preset for the "automatic recirculating air mode" if there is a complaint. Refer to the ⇒ Owner's Manual.*
- *The "automatic recirculating air mode" function is activated when the Air Quality Sensor -G238- (assembled together with the Humidity Sensor in Fresh Air Intake Duct -G657- in one component) detects polluted surrounding air and automatic recirculating air mode is switched on via the Multimedia System Control Head -E380-. The selected or changed functions are shown in the instrument cluster center display. Refer to the ⇒ Owner's Manual.*
- *The "automatic recirculating air mode" function is switched off when the "defrost mode" function is selected via the Defrost Button -E782-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function. For additional information, refer to the ⇒ Owner's Manual.*

- The Air Quality Sensor -G238- requires a short period of time to reach its operating temperature after the ignition is switched on. During the warm-up phase, the function of the Air Quality Sensor -G238- is limited.
- The Air Quality Sensor -G238- detects pollutants in the surrounding air (usually gasoline and/or diesel exhaust) and prompts the Climatronic Control Module -J255- to switch the A/C system to recirculating air mode.
- The Climatronic Control Module -J255- identifies the type and intensity of the air pollutant by the signal from the Air Quality Sensor -G238-. The Climatronic Control Module -J255- also receives information about whether the "automatic recirculating air mode" function is switched on or off from the Multimedia System Control Head -E380- via the data Bus. Based on this information, the Climatronic Control Module -J255- then determines if and when the A/C system switches to recirculating air mode. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

Example:

– At an exterior temperature above approximately +2 °C (35.6 °F), recirculating air mode is switched on upon request by the Air Quality Sensor -G238- when there is a slight increase in the pollutant concentration.

– At an exterior temperature below approximately -1 °C (30.2 °F) and with the A/C compressor switched off, the switchover will only take place if there is a sharp increase in the pollutant concentration. If there is another increase in the pollutant concentration for approximately 15 seconds within approximately two minutes, the Climatronic Control Module -J255- will not switch to "automatic recirculating air mode" during this time.

• If the indicator lamp in the A/C button (installed in the Front A/C Display Control Head 4 -E777-) does not come on, the Climatronic Control Module -J255- limits the maximum duration of the "automatic recirculating air mode" to approximately 15 seconds so that the vehicle windows do not fog up in the vehicle interior.

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– If the pollution concentration in the fresh air that is drawn in drops, the A/C system switches back over to fresh air mode.

• The duration of the “automatic recirculating air mode” depends on the Climatronic Control Module -J255- version, the setting on the Multimedia System Control Head -E380-, the Front A/C Display Control Head 4 -E777- and the Humidity Sensor -G355- measured values.

– If the exterior temperature is lower than approximately +10 °C (50 °F) and the “automatic recirculating air mode” function is activated on the Multimedia System Control Head -E380-, the system stays, for example, approximately 30 seconds in “automatic recirculating air mode”. After this, it switches to fresh air mode. If another increase in the pollutant concentration occurs within approximately two minutes, the Climatronic Control Module -J255- does not switch over to “automatic recirculating air mode” during this time.

♦ The “automatic recirculating air mode” function can be switched off at any time. If the function is active, the A/C compressor is switched on when there is a request for “automatic recirculating air mode” and also when the exterior temperature is below +2 °C (35.6 °F). If the temperature is below approximately -5 °C (23 °F), it is then no longer possible to use the A/C compressor.

♦ If “automatic recirculating air mode” is set in the MMI (Multi Media Interface), the A/C compressor can be switched on up to a temperature of approximately -5 °C (23 °F).

♦ To ensure that the A/C system is not constantly working in recirculating air mode in areas with consistently high air pollution, the Air Quality Sensor -G238- is self-adapting (it adjusts its sensitivity to the environmental conditions).

♦ If the outside air pollution load remains relatively high for a long period of time, the Air Quality Sensor -G238- starts to adapt itself to the altered environmental conditions through an adaptation program so that the air recirculation request is generally shorter than 12 minutes in uniformly polluted surrounding air. If a succession of peaks in the polluted air is detected, the A/C system can operate over a longer period of time in recirculating air mode.

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♦ A certain amount of time is required for repositioning of the A/C system doors. In the event that a sudden increase in pollutants is encountered (for example, when driving through a diesel exhaust cloud) gaseous pollutants can be taken in with the fresh air into the vehicle interior until the back pressure- /fresh air doors can be closed (and the air recirculation doors are opened). For this reason, a dust and pollen filter is installed with an activated charcoal layer. A filter that is saturated with pollutants is no longer effective and needs to be replaced.

♦ To prevent excessive operation of the back pressure/fresh air door and the air recirculation door, the door is not immediately activated if there is a nominal increase in pollutants in the surrounding air (the Air Quality Sensor -G238- does not send a request to the Climatronic Control Module -J255-). The filtering of the activated charcoal insert in the dust and pollen filter will be sufficient.

♦ In order to avoid excessive operation of the back pressure/fresh air door and the air recirculation door, a request from the Air Quality Sensor -G238- for “automatic recirculating air mode” remains active for at least 25 seconds (minimum duration period), even if the pollutant concentration in the air has reduced so much that recirculating air mode is no longer necessary.

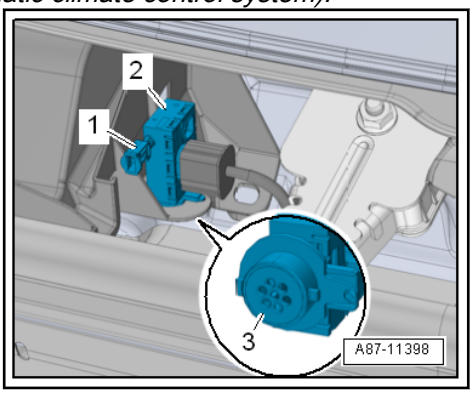
- The Climatronic Control Module -J255- does not allow recirculating air mode in “defrost” mode (recognizable by the illumination of the indicator lamp in the Defrost Button -E782-) so that the fogged up windshield, rear window and door windows can defog as quickly as possible (a request from the Air Quality Sensor -G238- is not implemented).
- The Air Quality Sensor -G238- requires a short period of time to become operational once the ignition has been switched on (warm-up time). During this time, no request is sent to the Climatronic Control Module -J255- control head for the “automatic recirculating air mode”.

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9.5 Air Quality Sensor -G238-, Checking

Note

- *The Air Quality Sensor -G238- and the Humidity Sensor in Fresh Air Intake Duct -G657- are only installed on a "Convenience" A/C system version (on an automatic climate control system).*
- *For vehicles with a "Basic" A/C system version, neither an Air Quality Sensor -G238- nor a Humidity Sensor in Fresh Air Intake Duct -G657- is installed.*
- *The Humidity Sensor in Fresh Air Intake Duct -G657- -item 1- and the Air Quality Sensor -G238- -item 3- are integrated in the housing -2- on a "Convenience" A/C system version (on an automatic climate control system).*



- *The Air Quality Sensor -G238- -item 3- requires a short period of time to reach its operating temperature after the ignition is switched on.*
- *During the warm-up phase, function is limited and may lead to an error message under certain ambient influences. Only replace the Air Quality Sensor -G238- if the Air Quality Sensor -G238- is continually registered as faulty. If the malfunction indicator for the Air Quality Sensor -G238- changes from "static" to "sporadic" after switching the ignition off and back on again (wait at least two minutes), the Air Quality Sensor -G238- is OK and it is no longer necessary to pay attention to the DTC memory entry (erase the DTC memory). Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.*
- *Certain A/C system functions (such as the regulation of the "automatic recirculating air mode") can be switched on and off via the Multimedia System Control Head -E380-. These settings appear in the instrument cluster center display. Therefore, first check the preset for the "automatic recirculating air mode" if there is a complaint. Refer to the ⇒ Owner's Manual.*
- *The "automatic recirculating air mode" function is activated when the Air Quality Sensor -G238- (assembled together with the Humidity Sensor in Fresh Air Intake Duct -G657- in one component) detects polluted surrounding air and automatic recirculating air mode is switched on via the Multimedia System Control Head -E380-. The selected or changed functions are shown in the instrument cluster center display. Refer to the ⇒ Owner's Manual.*
- *The "automatic recirculating air mode" function is switched off when the "defrost mode" function is selected via the Defrost Button -E782-. Use the ⇒ Vehicle diagnostic tester in*

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the “Guided Fault Finding” function. For additional information, refer to the ⇒ Owner's Manual.

Special tools and workshop equipment required

- ♦ Vehicle Diagnostic Tester
- ♦ Commercial gas lighter

Test Requirements

- Vehicle standing in an area with clean surrounding air, away from running engines, exhaust vents, etc.
- Engine compartment and the plenum chamber are clean: Not contaminated with oil or fuel.
- Engine compartment and plenum chamber were not sprayed with cleaning agents or preservatives containing solvents.
- “Automatic recirculating air mode” function is switched on.

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Note

The “automatic recirculating air mode” function can be switched on and off via the Multimedia System Control Head -E380-. These settings appear in the instrument cluster center display. Refer to the ⇒ Owner's Manual.

Function, Checking

– Remove the Air Quality Sensor -G238-. The connector remains connected. Refer to ⇒ A9.7 ir Quality SensorG238/Humidity Sensor In Fresh Air Intake DuctG657, Removing and Installing”, page 369 .

– Start the engine.

– Select “Auto” mode on the Front A/C Display Control Head 3 -E776-.

– Select the “automatic recirculating air mode” in the Climatronic Control Module -J255- via the Multimedia System Control Head -E380-. Refer to the ⇒ Owner's Manual.

- The Air Quality Sensor -G238- is operational after approximately two minutes warm-up time.

– Check the DTC memory of the Climatronic Control Module -J255- and select the “Read measured values” function using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

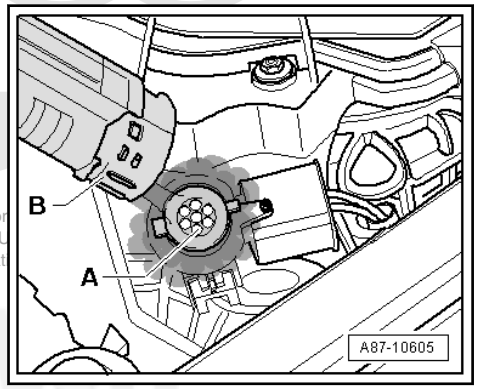
– Read out the current status for the fresh air or recirculating air mode via the “read measured values” function. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

Note

- ♦ *For an explanation of the possible displays, use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.*
- ♦ *The Climatronic Control Module -J255- calculates the measured values of the Air Quality Sensor -G238- (for the air pollution) and the different settings of the status for the recirculating or fresh air mode using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.*

- The heating and A/C system works in fresh air mode.

– Allow a little bit of gas from the lighter -B- to flow from above on the area -A- of the Air Quality Sensor -G238-.



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Note

If the Air Quality Sensor -G238- comes in contact with cigarette smoke or gas from a lighter, it will react. Gas from a lighter is heavier than air, therefore remove the Air Quality Sensor -G238- and expose it to the gas from above.

– “Read the measured values” for the fresh air or recirculating air mode status (considering the measured value for the Air Quality Sensor -G238-). Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

Note

The sensor itself cannot currently be checked with service equipment, however, if the air composition around the sensor changes, the signal from the Air Quality Sensor -G238- and the display value for the request for the fresh air and recirculating air mode status also changes. Use the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

– Wait a short period of time (approximately one minute, depending on amount of test gas flowing at the sensor).
– “Read the measured values” for the Air Quality Sensor -G238- using the Vehicle Diagnostic Tester .

• Specified value: the measured values return to the initial values in the display fields, thus indicating that both sensors are working correctly, and that the sensor electronics are evaluating the measured values correctly.

Note

Due to changed pollution values, it is possible that different values can be displayed than those by the first measuring.

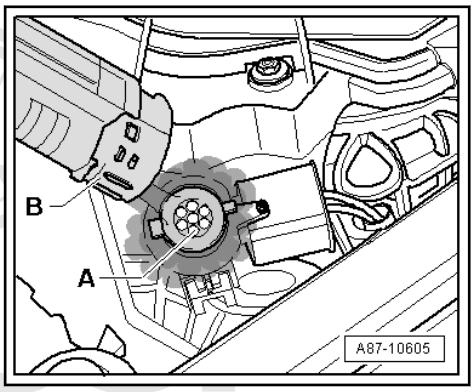
– “Read the measured value” for the “recirculating/fresh air mode” operating status of the A/C system.

• Specified value: the display field shows that the A/C system is working in fresh air mode.

Note

- *If a value deviating from the “fresh air mode” is displayed in the “read measured values” function, there is already a request for recirculating air mode (for example, because of the request for “maximum cooling output” or the “manual recirculating air mode” setting). Select a mode that does not require recirculating air mode.*
- *If it is shown in the “Read measured values” function that the Air Quality Sensor -G238- is already requesting “automatic recirculating air mode”, clean the plenum chamber if necessary or move the vehicle into an area where the surrounding air is cleaner.*

– Allow a little bit of gas from the lighter -B- to flow from above on the area -A- of the Air Quality Sensor -G238-.



– “Read the measured values” for the Air Quality Sensor -G238- using the ⇒ Vehicle diagnostic tester.

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– “Read the measured value” for the “recirculating/fresh air mode” operating status of the A/C system.

• Specified values: there is a request for recirculating air mode and the A/C system is working in recirculating air mode.

Note

- *If it is shown in the “read measured values” function that the Air Quality Sensor -G238- is requesting “automatic recirculating air mode”, but the request cannot be implemented due to a shut-off condition from the Climatronic Control Module -J255-, eliminate the cause of this shut-off condition if necessary.*
- *To prevent excessive switching of the recirculated air/fresh air and air recirculation doors, the request from the Air Quality Sensor -G238- for “automatic recirculating air mode” remains active for at least 25 seconds (minimum duration period), even if the pollutant concentration in the air has reduced so much that recirculating air mode is no longer necessary.*

– Wait a short period of time (approximately one minute, depending on amount of test gas flowing at the sensor).

• Specified value: there is no longer a request for recirculating air mode, and the A/C system is working again in fresh air mode.

– Install the Air Quality Sensor -G238-. Refer to ⇒ A9.7 ir Quality SensorG238/Humidity Sensor In Fresh Air Intake DuctG657, Removing and Installing”, page 369 .

If the Air Quality Sensor -G238- function is OK during this test and there is a customer complaint, proceed as follows:

– Check the dust and pollen filter for contamination. Refer to ⇒ a5.13 nd Pollen Filter, Removing and Installing”, page 247 .

– Select “Read measured values” using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

Note

A second technician is required to read out the displayed values while driving.

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Observe the safety instructions. Refer to ⇒ P1.4 recautions during Road Test with Testing Equipment”, page 2 .

– “Read the measured values” in turns for the Air Quality Sensor -G238- and the “recirculating/fresh air mode” request.

– Drive the vehicle into an area with a relatively clean surrounding air.

• Specified value: system is working in fresh air mode.

– Then drive the vehicle into an area where the surrounding air is polluted (for example, onto an uphill road with truck traffic).

• Specified value: the information in the different display fields must change; for example, when driving through a diesel exhaust cloud.

Note

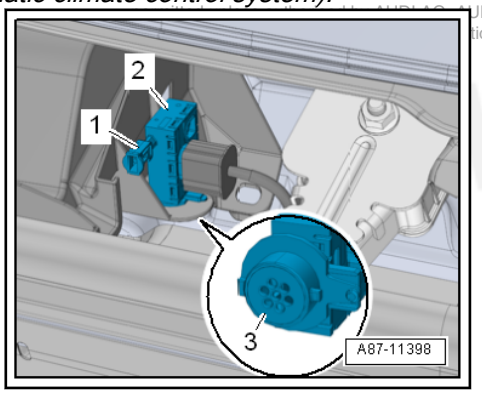
Also observe the function descriptions for the Air Quality Sensor -G238-/ and Humidity Sensor in Fresh Air Intake Duct -G657-. Refer to ⇒ Q9.4 uality SensorG238 Function”, page 358 .

9.6 Humidity Sensor in Fresh Air Intake Duct -G657- Function

Note

- *The Air Quality Sensor -G238- and the Humidity Sensor in Fresh Air Intake Duct -G657- are only installed on a "Convenience" A/C system version (on an automatic climate control system).*
- *For vehicles with a "Basic" A/C system version, neither an Air Quality Sensor -G238- nor a Humidity Sensor in Fresh Air Intake Duct -G657- is installed.*
- *In addition to the Humidity Sensor In Fresh Air Intake Duct -G657- -item 1-, an Air Quality Sensor -G238- -item 3- is integrated in the housing -2- on a "Convenience" A/C system version (on an automatic climate control system).*

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There are different versions of the Air Quality Sensor -G238- -3- and the Humidity Sensor in Fresh Air Intake Duct -G657- -1-. Pay attention to the correct allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).

- The Humidity Sensor in Fresh Air Intake Duct -G657- is a highly sensitive electronic component that can be damaged if it comes in direct contact with fluids, solvents, fuels and certain chemical compounds.
- The function of the Humidity Sensor in Fresh Air Intake Duct -G657- can be so severely impaired by direct contact with water that correct moisture values can no longer be determined (briefly or permanently, depending on the composition of the fluid). For this reason, do not install sensors that may have come into contact with these substances.
- The Humidity Sensor in Fresh Air Intake Duct -G657- calculates the temperature and the moisture in the air flowing by and exchanges the information with the Climatronic Control Module -J255-.
- The measured value of the Humidity Sensor in Fresh Air Intake Duct -G657- is evaluated by the Climatronic Control Module -J255-. Use the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function.

Note

Certain A/C system functions (such as the regulation of the "automatic recirculating air mode") can be switched on and off via the Multimedia System Control Head -E380-. These settings appear in the instrument cluster center display. Therefore, first check the preset for the "automatic recirculating air mode" if there is a complaint. Refer to the ⇒ Owner's Manual.

- The Climatronic Control Module -J255- calculates the current, relative humidity of the drawn-in fresh air from the measured values and the moisture in the vehicle interior from the measured values of the Humidity Sensor -G355- (installed in the mirror base. Refer to ⇒ H9.8 umidity SensorG355, Removing and Installing", page 370). The calculated humidity value is used to detect whether there is a risk of the windshield, rear window, and door windows fogging up on the inside. If that is the case, the Climatronic Control Module -J255- changes various characteristic curves to counteract this. This can occur, for example, by lowering the evaporator temperature (by activating the A/C compressor), by raising the response thresholds for the request for "automatic recirculating air mode", by preventing engine shut-off via the Start/Stop function, etc.

Note

Check the Humidity Sensor In Fresh Air Intake Duct -G657- using the ⇒ Vehicle diagnostic tester in the "Guided Fault Finding" function. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

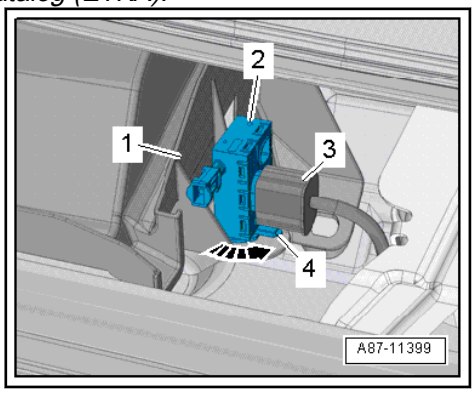
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9.7 Air Quality Sensor -G238-/Humidity Sensor In Fresh Air Intake Duct -G657-, Removing and Installing

Note

- *The Air Quality Sensor -G238- and the Humidity Sensor in Fresh Air Intake Duct -G657- are only installed on a "Convenience" A/C system version (on an automatic climate control system).*
- *For vehicles with a "Basic" A/C system version, neither an Air Quality Sensor -G238- nor a Humidity Sensor in Fresh Air Intake Duct -G657- is installed.*
- *There are different versions of the Air Quality Sensor -G238--3- and the Humidity Sensor in Fresh Air Intake Duct -G657--1-. Pay attention to the correct allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA).*

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The Air Quality Sensor -G238- -3- is only installed on the "Convenience" A/C system version (on an automatic climate control system). It is integrated together with the Humidity Sensor in Fresh Air Intake Duct -G657- -1- in the housing -2-.

Removing

– Remove the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 50; Bulkhead; (Overview - Plenum Chamber Cover).

– Release the securing tab -4- and turn the housing -2- for the Air Quality Sensor -G238-/ Humidity Sensor in Fresh Air Intake Duct -G657- counter-clockwise -arrow-.

– Remove the housing from the fresh air intake grille -1-.

– Disconnect the connector -3-.

Note

Do not store a removed Air Quality Sensor -G238- with the Humidity Sensor In Fresh Air Intake Duct -G657- in areas where it may come in contact with solvents, fuels and certain other chemicals (fluids or gases).

Installing

Install in the reverse order of removal while noting the following:

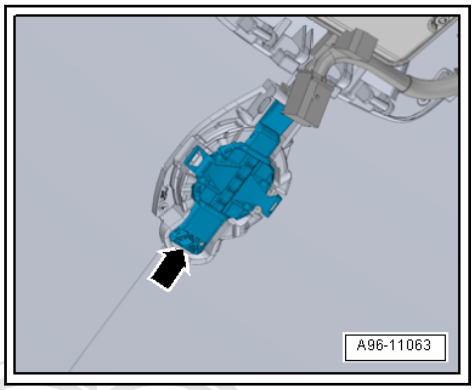
– Check the plenum chamber cover and the rain water drain channel on the fresh air intake for damage.

Note

If the plenum chamber cover is damaged or incorrectly installed, water can enter the fresh air intake via the rain water drain channel.

– Check the DTC memory and erase any displayed entries using the ⇒ Vehicle diagnostic tester in the “Guided Fault Finding” function.

9.8 Humidity Sensor -G355-, Removing and Installing

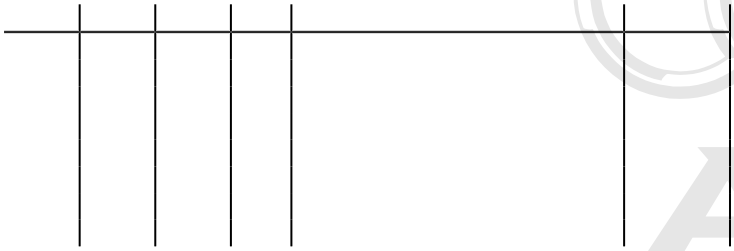


Note

- *The Humidity Sensor -G355- is only installed on vehicles with a “Convenience” A/C system version (on an automatic climate control system).*
- *If there is no Humidity Sensor -G355- installed on vehicles with a “Basic” A/C system version, a permissible stop time is currently calculated by characteristic curves that are influenced by the measured exterior temperature, the “recirculating air mode” function and operating condition of the windshield wipers.*
- *The calculated time must be greater than approximately 20 seconds so that the Stop function is permitted by the Climatronic Control Module -J255-. The stop time can be shortened at a lower exterior temperature, when the recirculating air mode is active and/or when it is raining to prevent the windshield and door windows from fogging up. If the calculated time for the Stop function is less than approximately 20 seconds, it is prevented.*
- *The Humidity Sensor -G355- is integrated in the Rain/Light Recognition Sensor -G397- and cannot be replaced separately when faulty. Rain/Light Recognition Sensor -G397-, Replacing. Refer to the ⇒ Electronic Parts Catalog (ETKA).*
- *The removal of the Rain/Light Recognition Sensor -G397- (with the Humidity Sensor -G355-) is described in different assembly groups depending on the vehicle.*

– Replace the Rain/Light Recognition Sensor -G397- (with the Humidity Sensor -G355-). Refer to ⇒ Body Exterior; Rep. Gr. 64; Windshield; Overview - Windshield and ⇒ Electrical Equipment; Rep. Gr. 92; Windshield Wiper System; Rain/Light Recognition Sensor, Removing and Installing.

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Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Audi retailer or other qualified shop. We especially urge you to consult an authorized Audi retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Audi.

- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.

- Audi is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Audi retailer parts department for the latest information.

- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the Audi Factory Approved Scan Tool (ST).

- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.

- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.

- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.

- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.

- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.

- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.

- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.

next

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Version 2.0

Cautions & Warnings

- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.

- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.

- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.

- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly, do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Audi specifications. Makeshift tools, parts and procedures will not make good repairs.

- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.

- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.

- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.

- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.

- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.

- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.

- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.

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Version 2.0

Cautions & Warnings

- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).

- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Audi Service technicians should test, disassemble or service the airbag system.

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.

- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Audi Service technicians using the Audi Factory Approved Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.

- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.

- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

I have read and I understand these Cautions and Warnings.

back OK

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